Lassen Volcanic

National Park Service
U.S. Department of the Interior

Warner Valley Comprehensive Site Plan
Final Environmental Impact Statement

September 2010

Lassen Volcanic National Park
Mineral, California

Lassen Volcanic

National Park Service
U.S. Department of the Interior

Warner Valley Comprehensive Site Plan
Final Environmental Impact Statement

September 2010

Lassen Volcanic National Park
Mineral, California

United States Department of the Interior
National Park Service

Warner Valley Comprehensive Site Plan
Final Environmental Impact Statement

Lassen Volcanic National Park
Plumas County, California

September, 2010

This Final Environmental Impact Statement (FEIS) was prepared in accordance with the Department of Interior National Environmental Policy Act (NEPA) and the National Park Service NEPA guidelines (DO-12). This document has been prepared because actions proposed as part of the Comprehensive Site Plan may be a major federal action significantly affecting the quality of the human environment.

The National Park Service (NPS) is proposing the Warner Valley Comprehensive Site Plan to address natural and cultural resource conflicts and to improve circulation and parking in Warner Valley. The current NPS planning effort has several primary purposes: (1) improvements to the visitor experience and safety through improvements to infrastructure and relocating infrastructure so it is less visible; (2) ecological restoration of the larger Warner Valley fen and wetland areas; (3) repair or removal of Dream Lake Dam and restoration of the damaged riparian/wetland complex; and (4) removal of the non-contributing features from Drakesbad Guest Ranch Historic District.

Alternative 2 (the agency-preferred and environmentally-preferred alternative) includes the following components: (i) Ecological restoration of wetlands throughout Warner Valley along with permanently filling ditches with appropriate soil in Drakesbad Meadow; (ii) Creating a concession housing and service center outside of the Drakesbad Guest Ranch Historic District composed of tent cabins surrounding a single-story bathhouse building; (iii) Removing Dream Lake Dam and allowing the area to revert to a riparian/wetland complex.

Two additional alternatives are analyzed in this FEIS: *Alternative 1*, the No Action Alternative would continue current management practices; *Alternative 3* includes: (i) Restoration of Warner Valley fen through the damming of ditches; (ii) Creating a concession housing and service center outside the Drakesbad Guest Ranch Historic District composed of a two-story dormitory building with bathrooms; (iii) Re-constructing Dream Lake Dam to Bureau of Reclamation engineering standards.

For each alternative action, the Park analyzed the potential environmental impacts that would likely occur, divided into the following categories: Geologic Resources and Hazards; Hydrology and Water Quality; Vegetation and Wildlife, Wetlands and Special-status Species; Soundscapes; Cultural Resources; Visitor Experience; Public Health and Safety; Transportation; Scenic Resources; and Park Operations and Facilities.

The Draft EIS was available for public review from August 21 through November 21, 2009. Changes made based on public comments received or internal clarifications are incorporated directly into the text of the FEIS. Not sooner than 30 days after release of this FEIS, a Record of Decision may be prepared. As a delegated FEIS, the official responsible for approval of the Comprehensive Site Plan is the Regional Director, Pacific West Region; thereafter the Superintendent, Lassen Volcanic National Park would be responsible for implementation.

TABLE OF CONTENTS

Warner Valley Comprehensive Site Plan
Final Environmental Impact Statement

Page

Page

Page

Chapter 4: Environmental Consequences (cont.)

Appendices

List of Figures

Page

List of Figures (continued)

List of Tables

CHAPTER 1
Purpose and Need

1.1 Background

The National Park Service (NPS) is considering a Comprehensive Site Plan for Warner Valley at Lassen Volcanic National Park (Park). Lassen Volcanic National Park is a 106,372-acre park located in four California counties, including Plumas, Lassen, Shasta, and Tehama.[1] This Final Environmental Impact Statement (FEIS) addresses the Warner Valley Comprehensive Site Plan (Plan). Warner Valley is located in the south central part of the park and is the location of Drakesbad Guest Ranch, a concession-operated lodging facility. The Warner Valley includes Dream Lake Dam, which impounds an approximately two-acre lake and is a contributing resource (structure) of the historic district. The center of Warner Valley features a large meadow (Drakesbad Meadow) that is one of the largest known fens in the western United States. Warner Valley also features a campground and several trails, including the Pacific Crest Trail that traverses the valley.

This Plan was developed to address natural and cultural resource conflicts and to improve circulation and parking in Warner Valley. The Plan is focused on the protection of the cultural landscape at Drakesbad Guest Ranch and the historic and cultural resources in Warner Valley. In particular, the Plan includes protection measures for unique natural resources including sensitive wetlands and the geothermal features in the surrounding areas. The Plan also addresses visitor access, facilities, and programs.

1.2 Purpose and Need for Federal Action

The NPS is considering a comprehensive site plan for Warner Valley at Lassen Volcanic National Park, which is needed to address natural and cultural resource conflicts, improve design and accessibility of the campground and to improve parking and circulation as stipulated by the Lassen Volcanic National Park's 2002 General Management Plan (GMP).

1.2.1 Purpose of the Project

The purpose of the Warner Valley Comprehensive Site Plan is to:

- Improve visitor experience through attention to educational, interpretive, and recreational opportunities in the Park and protection of wilderness values.

[1] The project area is located only within Plumas County.

- Provide a comprehensive planning effort for the Warner Valley area to effectively address visitor services, natural resource and cultural resource protection, infrastructure improvements, and sustainability and efficiency of facilities and utilities.
- Evaluate the appropriateness and adequacy of existing infrastructure with respect to the preservation of natural and cultural resources, human aesthetics, and visitor and staff safety and visitor experience.
- Protect and restore the hydrologic and biologic functions of the damaged fen wetland in Warner Valley.
- Improve trail connections and campgrounds and repair damage to sensitive resources.
- Protect public health and public and employee safety by addressing structural concerns of Dream Lake Dam.

1.2.2 Need for the Project

The need for a Warner Valley Comprehensive Site Plan arose out of a series of issues identified by Park staff and visitors. These include the following:

- Natural and cultural resource conflicts in the Warner Valley area, including the historic placement of existing facilities within sensitive wetland areas and the degradation of natural resources in Drakesbad Meadow.
- The need and desire for continued use of an historical/cultural resource while preserving that resource, following recommendations from the National Park Service's Cultural Landscape Report for Drakesbad Guest Ranch.
- Improvement of visitors' visual experience.
- Inefficient infrastructure including utilities and other systems that are neither sustainable nor efficient.
- Insufficient and substandard concession employee housing.
- Inadequate storage space for operations at Drakesbad Guest Ranch.
- Pollutants in the meadow due to effluent from the stock also seed from feed for the stock feed introduces non-native species into the meadow.
- Needed improvements to trail connections, trailheads, and way finding.
- Traffic safety concerns on Warner Valley Road, including a blind curve and slippery road base.
- Inadequate day use/trailhead parking. The parking is an inadequate size and is located in a sensitive wetland area.
- Design problems concerning the Warner Valley campground – bifurcated, dusty, and infringing on the Hot Springs Creek natural resources through proximity of campsites to steep slopes adjacent to the creek.
- Motor vehicle safety concerns at the entrance due to poor location of the fee station.

1.2.3 Purpose and Significance of the Park

Lassen Volcanic National Park was established by an Act of Congress in 1916 "for recreation purposes by the public and for the preservation from injury or spoliation of all timber, mineral deposits and natural curiosities or wonders within said park and their retention in their natural condition…and provide against the wanton destruction of the fish and game found within said park and against their capture or destruction…."[2]

Lassen Volcanic National Park is a unique example of a dynamic geologic landscape and is of national significance. Lassen Peak erupted over a six-year period between 1914 and 1921. Lassen Peak is one of the largest plug dome volcanoes in the world. The park is unique in that it also preserves, in a relatively small geographic area, examples of the three other types of volcanoes recognized by geologists: shield volcanoes, composite volcanoes and cinder cones. The park also contains a network of geothermal resources including boiling springs, mudpots, and fumaroles.

In 1972 Congress designated 75 percent of the park (78,982 acres) as the Lassen Volcanic Wilderness. Appropriate recreation on lands managed for wilderness values include such activities as hiking, backpacking, horseback riding and fishing. The Wilderness Act, passed by Congress in 1964, provides guidance to federal agencies with respect to the management of wilderness areas. This Act restricts the construction of roads, buildings, and other man-made improvements and the use of motorized vehicles in wilderness.

In addition to natural resources, the park preserves nationally significant cultural resources including 84 historic buildings that are on the List of Classified Structures (most of which date from the Civilian Conservation Corps era), over 70 Native American archeological sites, and portions of the Nobles Emigrant Trail. The Drakesbad Lodge and the Warner Valley Ranger Station are on the National Register of Historic Places.

1.3 Planning Context

1.3.1 Applicable Plans and Policies

The following plans and policies have been reviewed for critical needs and desired future uses of the park.

- Condition Survey Report – Dream Lake Dam, November 2000
- Cultural Landscape Report for Drakesbad Guest Ranch, March 2005
- Lassen Volcanic National Park General Management Plan, June 2002
- Hydrologic Characterization and Restoration of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Summer 2005

[2] "An Act To establish the Lassen Volcanic National Park in the Sierra Nevada Mountains in the State of California, and for other purposes." H.R. 348, Public Act No. 184, 64th congress

- Lassen Volcanic National Park – Natural and Cultural Resource Management Plan, December 1999
- Lassen Volcanic National Park Commercial Services Plan and Environmental Assessment, Lassen Volcanic National Park, June 2005
- Lassen Volcanic National Park –Visitor Study, Summer 1999
- Title I Schematic Design Report – Dream Lake Dam, Lassen Volcanic National Park – May 2007

1.3.2 Agency Coordination and Stakeholders

The following agencies have an interest in either the environmental documentation and/or the subsequent permitting for this project.

- National Park Service
- National Park Service Water Resources Division
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Division of Safety of Dams
- Bureau of Reclamation
- State Historic Preservation Office
- Lassen National Forest

1.3.3 Public Involvement

The issues to be addressed in this FEIS were identified through a cooperative planning process involving Lassen Volcanic National Park staff and the public. Public scoping is designed to be an early, open public process to determine the scope and significance of issues to be addressed in an environmental document for a proposed action. An informal scoping process for this FEIS was initiated on June 1, 2004 with the posting of an information sign at the Drakesbad Guest Ranch Lodge and a request for scoping comments. The formal scoping process was initiated on June 24, 2005 with the publication of the Notice of Intent to prepare a Draft EIS in the Federal Register. Originally, the Dream Lake Dam Management Plan was to be an EIS on its own; however, it was later determined that Dream Lake Dam should be included in the Warner Valley Comprehensive Site Plan since it is within Warner Valley. The Park chose to look at the entire area holistically in order to be able to accurately assess the cumulative effects of all the proposed actions. Public scoping for the original Dream Lake Dam Management Plan was initiated on April 4, 2003 with the publication of the Notice of Intent to prepare a Draft EIS in the Federal Register. All comments received from that scoping process have been considered in this current EIS process. Public scoping meetings were held for the Dream Lake Dam Management Plan on November 4-7, 2002 in the towns of Chico, Red Bluff, Redding, and Chester. Public scoping meetings for the Warner Valley Comprehensive Site Plan were held on June 13-15, 2005 in the towns of Red Bluff, Chester, and Vacaville. Based on these meetings, public comments, background data and studies, alternatives for

different areas were developed. Additional study of the Dream Lake Dam alternatives was followed by a separate park staff workshop for Dream Lake Dam alternatives assessment in June 2008 using the Choosing by Advantages (CBA) process.

1.3.4 Planning Issues

Warner Valley is a complex system of natural and man-made features. The park's mission is "to conserve, preserve, and protect Lassen Volcanic National Park and its geological, biological, and cultural resources for the enjoyment, education, and inspiration of present and future generations."

The NPS has numerous challenges in the Warner Valley, the foremost being the relationship between people, existing development, and the natural environment. Providing design alternatives sensitive to these challenges is key to successful planning for the future of Warner Valley. No single resource can be modified without affecting one or more of the other resources. The following resource areas are relevant to the project and were developed as a result of compiled scoping session comments.

Natural Resource Issues

- Dream Lake Dam is a man-made structure that alters the natural flow of water in the area. It is in poor condition and could fail if no action is taken. Beaver in the area have caused the lake level to rise and, at times, over-top the dam. There is concern about the environmental impacts from construction equipment that both re-building and/or altering the existing dam could have on the area. Therefore, it is necessary to assess alternative methods of equipment access for all of the alternative actions.

- Consider clean-up and restoration of meadow at old trash dump at the upper end of Drakesbad Meadow.

- Consider alternative sources of power

- Plan for the control of invasive/non-native plant species.

- Protection of wetlands in day use parking area.

- Consider all potential impacts of restoring the fen, including the potential for increased mosquitoes and potentially limited access across the meadow.

- Consider alternatives to improve the natural flow of water that is currently impeded by two paths/gravel roads across the meadow.

- Consider alternatives for the corral/meadow interface, such as using engineered methods to mitigate for the horse effluent going into the meadow or utilizing a French drain to re-direct the effluent, or moving the corral to a different location.

- Assess what appears to some as increased hydrothermal activity in the Warner Valley area and consider whether or not this increased activity could be harmful to people who eat the fish in the area.

- Consider adding signs informing hikers when they have entered into the nearby wilderness area and what the rules and benefits of a wilderness area are.
- Consider impacts of chlorinated water from the pool going into the creek.

Cultural Resource Issues

- Re-establish the historic cultural landscape
- Consider alternatives that mitigate long-term adverse impact associated with the potential removal of Dream Lake Dam, a contributing resource of the historic district.
- Consider alternatives that promote compatible adaptive use when new uses are proposed or introduced within the historic district.
- Consider alternative technologies that preserve the location and character of historic trails and infrastructure while reducing impacts to natural resources.
- Consider alternatives that preserve contributing resources comprising the Drakesbad Guest Ranch including historic patterns of land use and spatial organization.
- Consider the removal of non-historic features that affect the historic viewshed, such as the volleyball court at Drakesbad Guest Ranch.

Visitor Experience and Socio-Economic Issues

Comments under this category largely were focused on visitor experience and included the following:

- Maintain the rustic experience at Drakesbad Guest Ranch (no electricity, phones, TV, internet).
- Maintain historic views of Mt. Harkness through the meadow.
- Consider options for alleviating dust and potential hazards on the Warner Valley Road.
- Evaluate the ever-increasing cost to visitors that stay at Drakesbad Guest Ranch and consider setting aside a few rooms for people of lower incomes.
- Take into account the changing demographics of California (age, race, etc.) and their needs.
- Consider campsites that accommodate small RVs and horse trailers as well as ADA-accessible sites and group sites. Ensure adequate parking areas at the campground as well as level sites for tents. Consider putting the camp host site in an open area where solar panels can be used and consider access to potable water and sewer hook-ups for the camp host site. Consider a new location for the Campground (such as the flat area near the Warner Valley Road and the park entrance).
- Consider peak summer use when designing trailhead parking.
- Consider use of interpretive signs on trails.

- Address the visual intrusion of the culverts added to the water tank road.
- Consider adding huts for winter ski-in use.
- Consider expanding and diversifying the constituent/visitor base.

Health and Safety Issues

Commentors requested the following considerations:

- Consider alternatives to address the inadequacy of the current housing for employees at Drakesbad Guest Ranch.
- Consider alternatives for parking and circulation as discussed in the 2003 GMP.
- Consider an emergency egress route out of Drakesbad Guest Ranch in case of a fire.
- Provide for clearly delineated sites at the campground.
- Address safety concerns (i.e., parking and pedestrian circulation) at the entrance self-pay station.

1.3.5 Impact Topics Analyzed in this Environmental Impact Statement

The NPS Director's Order 12 outlines Council on Environmental Quality (CEQ) National Environmental Policy Act requirements for mandatory topics under the affected environment.

The following impact areas will be analyzed in this FEIS:

- Geologic Resources and Hazards
- Hydrology and Water Quality
- Vegetation, Wetlands, Wildlife and Special Status Species
- Soundscapes
- Cultural Resources
- Visitor Experience
- Public Health and Safety
- Transportation
- Scenic Resources
- Park Operations and Facilities (including energy and conservation potential)

1.3.6 Impact Topics Dismissed from Detailed Analysis in this Environmental Impact Statement

The following impact topics have been dismissed from further analysis in this FEIS because they have been deemed irrelevant to the scope and context of the project.

Prime and Unique Agricultural Lands

There are no agricultural lands in the project area, nor would the proposed action under the project alternatives have indirect effects on downstream agricultural lands. Thus no discussion of this topic is necessary.

Environmental Justice

Environmental justice analyses determine whether a proposed action would have "disproportionately high and adverse human health or environmental effects…on minority populations and low-income populations." The National Park Service and other federal agencies have determined that a disproportionately high and adverse effect on minority and low-income populations means an adverse effect that would result in either of the following two scenarios: (1) The effect is predominately borne by a minority population and/or a low-income population; and (2) The effect will be suffered by the minority population and/or low-income population and is appreciable more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

No aspect of any alternative of the Warner Valley Comprehensive Site Plan would result in disproportionately high and adverse human health or environmental effects on minority or low income populations; therefore environmental justice is not considered in this environmental assessment.

Air Quality

The National Park Service has a responsibility to protect air quality under both the 1916 Organic Act and the Clean Air Act. The 1963 Clean Air Act, as amended (42 USC 7401 et seq.) requires federal land managers to protect park air quality while the National Park Service 2006 Management Policies address the need to analyze air quality during park planning. The Clean Air Act requires superintendents to take actions consistent with their affirmative responsibilities to protect air quality related values in Class I areas. Class I areas include all National Park Service units designated as national parks with more than 6,000 acres and all national wilderness areas with more than 5,000 acres that were in existence on August 7, 1977, and any other area redesignated as Class I by the governing state or Native American authority. The act also establishes a national goal of preventing any future and remedying any existing man-made visibility impairment in Class I areas.

Lassen Volcanic National Park extends into four counties, including Plumas, Lassen, Shasta, and Tehama. Warner Valley is in Plumas County, which is regulated by the Northern Sierra Air

Quality Management District. Plumas County is in attainment or is unclassified for all national ambient air quality standards. For state standards, the County is in attainment or is unclassified for state criteria pollutants except it is in non-attainment for PM10 (respirable particulate matter) (NSAQMD, 2005).

Air quality-related concerns at Lassen Volcanic National Park affect visibility and vegetation. Visibility refers to the clarity of the atmosphere and is typically measured as the distance one can see at a particular location and time. The absorption and scattering of light by both gasses and particles in the atmosphere restricts visibility. Natural factors that decrease visibility include fog, precipitation, blowing dust and snow, and relative humidity above 70 percent. Human activities that reduce visibility include the combustion of fossil fuels, which transforms emissions into tiny visibility-reducing particles termed “aerosols”, and soil disturbing activities that increase the air-borne particulates.

Sensitive Receptors

Visitors to Warner Valley are not exposed to the ambient air quality over the long term, and therefore are not considered at risk to exposure to poor air quality. While the Park may attract both adolescent and elderly visitors, population groups that are sensitive to air quality, exposure to ambient air quality would be temporary and therefore these groups are not considered sensitive receptors to local air emissions.

Air Quality in Warner Valley

The Warner Valley Comprehensive Site Plan cites dust as an issue that affects the lower campground due to its location near the road. Although the preferred alternative would require use of heavy equipment during construction, emissions and dust associated with these activities would be rapidly dissipated by air drainage as air stagnation is rare at the project site. Dust mitigation measures, such as spraying the site with water in order to keep dust at a minimum, would also be implemented. Impacts on air quality would be short-term and negligible in a local and regional context.

References

National Park Service (NPS), 2005. *Cultural Landscape Report for Drakesbad Guest Ranch*, March.

Northern Sierra Air Quality Management District (NSAQMD), 2006. *Northern Sierra Air Quality Management District Annual Air Monitoring Report 2005*, April 15.

CHAPTER 2
Alternatives

2.1 Overview of the Alternatives

The National Park Service (NPS) gathered a team of staff and resource experts to develop alternatives for projects in Warner Valley. Information used included environmental surveys and studies, user data, and direct site observations undertaken by the project team. The project team developed an initial series of alternatives for different areas of concern including visitor entry sequence, road improvements, campground, trail and day use parking, employee housing, Drakesbad Guest Ranch facilities, Drakesbad Meadow and Dream Lake Dam. In this FEIS, Alternative 1 is the "No Action" Alternative, and Alternative 2, is the preferred alternative and also the environmentally preferred alternative. Alternative 3 proposes many of the same changes as Alternative 2 with the primary differences being the location and configuration of certain visitor serving structures, the treatment of Dream Lake Dam, and the configuration of the campground. NPS staff participated in a Choosing by Advantages (CBA) workshop in August 2005 to evaluate preliminary alternatives. Additional study of the Dream Lake Dam alternatives were followed by a separate CBA workshop in June 2008. The following alternative descriptions are based on the results from these workshops and public comments.

Table 2-1 shows a side-by-side comparison of all three alternatives and **Figures 2-1a-c** illustrate the differences between the alternatives in a graphical representation.

2.1.1 Alternative (No Action)

Alternative 1 proposes that no substantive changes will be made to the Warner Valley area. A map of the existing conditions is shown in **Figure 2-1a**. Below is a description of the key features of Warner Valley and the existing conditions of each area. Sites are described from east to west in Warner Valley, following the visitor's entry experience.

Entry to Warner Valley

Fee Station

Key areas of concern at the visitor's entry are the placement of the fee station and the location of the road to the water tank that supplies the ranger station. The fee station and receptacle for fees (i.e. iron ranger) sits just before the ranger station on the north side of the road. One of the safety issues regarding this location is the lack of adequate room for parking. Visitors currently have to stop their cars in the road, or park at the ranger station and walk back 100 feet to access the fee station. In addition, the fee station is located on a blind curve, so any cars stopped in the road cannot

be seen until the last moment by traffic coming into Warner Valley. Pedestrian circulation around the fee station additionally puts pedestrians in the roadway along with vehicular traffic. Another issue is that the fee station is located in a natural drainage with soft soils, so that the braking and accelerating of cars causes excessive wear on the road. The current location of the fee station is difficult to monitor by park staff, which is a concern due to the ongoing problem of fee theft.

Access Road to Water Tank at Ranger Station[1]

A different area of concern at the entry is an unimproved road to the water tank that supplies the seasonal ranger station. The road diverts a natural drainage, creating erosion. The road also creates confusion to visitors who mistake it for an access road. Access to the tank needs to remain in some form, as the tank is monitored regularly for water quality.

Warner Valley Road

Designed for two-way traffic, the Warner Valley Road is approximately twenty feet wide and of compacted gravel construction. General issues on the entry road include road dust, lack of stability, blocking of drainage from the slopes into the creek, and inadequate drainage structures.

One specific area of concern on the road is located approximately one-half mile west of the ranger station. The road dips and then turns into a blind curve on a slope with a steep incline. Acceleration causes rutting in certain locations, though to date, no accidents have been recorded on this section of road.

Blind Curve along Warner Valley Road

Campground, Trail, and Day Use Parking

The campground and day use parking are related to one another, and therefore are viewed as one planning unit.

The existing campground has two sections divided by the Warner Valley Road see **Figure 2-2**. The campground below the road has safety, natural resource, and visitor experience issues. The main safety issues are the close proximity of the campsites to the creek and the road.

Upper Campground

[1] Note that there are references to two different water tank access roads throughout this document, one that serves the ranger station, and one that serves Drakesbad Guest Ranch

TABLE 2-1
COMPARISON OF ALTERNATIVES

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
Alternative 1 proposes that the existing conditions and needs described below would not change under this alternative	Alternative 2 proposes a preferred alternative for each site, selected during the Choosing by Advantages workshops conducted by NPS staff in August of 2005 and June 2008	Alternative 3 proposes improvements similar to Alternative 2 with modifications in each area
ENTRY TO WARNER VALLEY		
Fee Station • Visitor safety issues with current location of the fee station • Existing pull-out is too small, located near a natural drainage, and is adjacent to a dangerous curve	• Move fee station to west of ranger station, at existing pull-out • Fill area to raise grade • Provide three parking spaces defined with rock borders • Remove three trees at edge of road to improve visibility	Move fee station to new location in front of vault toilet adjacent to ranger station
Access Road to Water Tank at Ranger Station • Unimproved road blocks drainage ditch creating erosion • Park visitors mistake the road as an access road to the Park	• Remove the existing road from the drainage and discontinue use • Construct new service road to the water tank on the ridge to the east of the existing road with dimensions of 8 feet by 130 feet with 1 to 2 foot cuts as needed for a rock road base • Restore existing roadbed by reseeding with native plants • Remove two small diameter white fir trees (less than 12 inches) and standing dead snags	• Maintain existing road to the water tank • Install a culvert in the drainage ditch to decrease erosion • Install a chain gate to limit access to the water tank and to eliminate confusion over the purpose of this road • Stabilize entrance to the road with an apron of concrete or grass-crete cells to minimize erosion
WARNER VALLEY ROAD AND GENERAL ROAD MAINTENANCE		
Warner Valley Road Warner Valley Road is designed for two-way traffic and is approximately 20 feet wide. Issues of concern with this road include: • Compacted gravel construction • Blind, steep curve one-half mile west of ranger station • Vehicles speed on downhill approach • Acceleration on steep uphill causes road degradation • Road dust • Lack of stability • Slope drainage to creek is blocked • Inadequate drainage structures	• Replace undersized or failing culverts and follow actions outlined in the Warner Valley Road culvert inventory, which recommends adding (6) new culverts, replacing (16) existing culverts and repairing (9) culverts • No action at the curve one-half mile west of ranger station • Application of environmentally-approved dust suppressants in high use visitor areas (e.g. campground/day use parking zone, along some road sections, in front of the ranger station, and near Drakesbad Guest Ranch lodge/dining hall) • Maintain two-way traffic on the existing road • Install uniform aggregate to reduce road dust and improve stability • Install rock headwalls	• Replace undersized or failing culverts and follow actions outlined in the Warner Valley Road culvert inventory, which recommends adding (6) new culverts, replacing (16) existing culverts and repairing (9) culverts • Widen existing curve on uphill side • Maintain two-way traffic on the existing road • Add drainage ditch on uphill side to decrease erosion • Install uniform aggregate to reduce road dust and improve stability • Install rock headwalls

TABLE 2-1 (Continued)
COMPARISON OF ALTERNATIVES

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
CAMPGROUND, TRAIL, AND DAY USE PARKING		
Day Use Parking • Day use parking lot accommodates 12 cars, vault toilet, water and picnic tables for day hikers • The existing day use parking lot is located in a wetland and too small to accommodate parking needed for day users Hiking Trails • The Pacific Crest Trail connection to the Warner Valley trail system is along Warner Valley Road towards Drakesbad Guest Ranch, which creates a hazardous situation for hikers • The trails are not well-connected to Warner Valley trail network • Trail connections for major destinations to south begin at day use parking Campgrounds • Upper and lower campgrounds are divided by the Warner Valley Road • Lower campground has safety issues due to proximity to road and steep slope to the creek • Traffic on Warner Valley Road creates dust that wafts into campgrounds • No accommodation for camp host • No accessible (ADA-compliant) camping.	Day Use Parking • Eliminate existing day use parking, toilet and picnic tables and restore area to a natural meadow / wetland • Create new day use parking area in lower campground consisting of 20 gravel parking spaces • Retain three picnic tables, water faucet and double vault toilet at the lower campground • Remove three trees • No earthwork required at new parking area Hiking Trails • Provide uninterrupted Pacific Crest Trail connection with a new trail downslope from Warner Valley Road paralleling Hot Springs Creek, between new day use parking / old lower campground and old day use parking / trailhead at the meadow • Install new trail by clearing brush; no tree removal • Construct boardwalks over wetland areas Campgrounds • Close lower campground and convert to day use parking • Relocate five campsites from lower campground to upper campground and designate one as an ADA-accessible site • Add new double vault toilet across from campsite #17 • Expand loop road and close center loop • Designate campsite #19 at entrance for camp host. • Provide septic holding tank for camp host • Designate parking areas with buried boulders or logs and restore areas impacted by informal parking	Day Use Parking • Eliminate existing day use parking, toilet and picnic tables and restore area to a natural meadow / wetland • Create new day use parking area in lower campground consisting of 20 gravel parking spaces • Retain three picnic tables, water faucet and double vault toilet at the lower campground • Remove three trees • No earthwork required at new parking area Hiking Trails • Provide uninterrupted Pacific Crest Trail connection via new trail downslope from Warner Valley Road (paralleling Hot Springs Creek, between new day use parking / old lower campground and old day use parking / trailhead at the meadow • Install new trail by clearing brush; no tree removal • Construct boardwalks over wetland areas Campgrounds • Close lower campground and convert to day use parking • No relocation of lower campsites to upper campground. • Add new double vault toilet across from campsite #17 • Expand loop road and close center loop • Designate campsite #19 at entrance for camp host • Provide septic holding tank for camp host • Designate parking areas with buried boulders or logs and restore areas impacted by informal parking

TABLE 2-1 (Continued)
COMPARISON OF ALTERNATIVES

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
DRAKESBAD GUEST RANCH		
Concessioner Housing and Service Center		
Fifteen concessioner staff are currently housed in temporary trailers, a dormitory above the dining hall, and in the bunk house, all within the historic district	Construct new service center outside the historic district and relocate concessioner staff housing: • Eight double0occupancy tent cabins to accommodate 16 people • Bathhouse with apartment unit for cook • Four single-occupancy bathrooms with showers (one ADA-compliant facility), and kitchen unit • Install hybrid power system • Create short loop road for vehicle access • Remove three trees during construction • Create 13 employee parking spaces	Construct new service center outside the historic district and relocate staff housing here consisting of: • Two-story wood frame dormitory with apartment unit for cook to accommodate 17 people • Four single-occupancy bathrooms with showers, and kitchen unit • Install hybrid power system • Create short loop road for vehicle access • Remove three trees during construction • Create 13 employee parking spaces
Small Scale Features		
The following features are currently located in the historic district at Drakesbad Guest Ranch: • Dumpster • Generator • Propane tanks • Site Storage at 'Boneyard'	• Relocate dumpster to new service center • Relocate generator and enclose in a building at the service center • Relocate and screen propane tanks and site storage at the new service center • Construct new storage and delivery building in the service center • Restore areas where existing small scale features are located	• Relocate dumpster to new service center • Relocate generator and enclose in a building at the service center • Relocate and screen propane tanks and site storage at the new service center • Construct new storage and delivery building in the service center • Restore areas where existing small scale features are located
Bathhouse and Pool		
Existing bathhouse contains: • Women's restroom (two toilets, one sink) • Men's restroom (one toilet, one urinal, one sink) • Two private bathtubs • Four private showers • Four changing stalls • No ADA-accessible restrooms • Massage room • Storage/mechanical room	Bathhouse renovation design would incorporate: • ADA-accessible women's restroom (two toilets, one sink) • ADA-accessible men's restroom (one toilet, one urinal, one sink) • One accessible shower • One bathtub/shower • Six standard showers • One massage room • Remove four changing stalls	Bathhouse renovation design would be the same size as Alternative 2, but with a different layout Existing mechanical room, women's restroom and men's restroom would remain Existing bathhouse would be extended to include: • One ADA-accessible single-occupancy restroom with shower • One bathtub • Seven showers • Four changing stalls

TABLE 2-1 (Continued)
COMPARISON OF ALTERNATIVES

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
DRAKESBAD GUEST RANCH (cont.)		
Bathhouse and Pool (cont.)		
• Filter house (noncontributing structure in the historic district) is located on the pool deck • Concrete coping and deck at pool are not in keeping with historic character	• Storage closet Additional modifications: • Relocate filter house to a filter/pump room in the bathhouse • Install photovoltaics to south side of roof • Replace coping and deck with historically compatible material such as stone paving • Stabilize eroding stream banks with native riparian plant species	• Two massage rooms • Storage closet Additional modifications: • Relocate filter house to a filter/pump room in the bathhouse • Install photovoltaics to south side of roof • Replace coping and deck with historically compatible material such as stone paving • Stabilize eroding stream banks with native riparian plant species
Circulation at Drakesbad Guest Ranch		
Parking • Guests and staff currently park vehicles wherever they can find space • Approximately 70 parking stalls exist • Parking areas tend to “creep,” slowly expanding over time	• Relocate parking to designated areas • Designate parking with rock barriers • Limit overnight guest parking to two cars per unit • Designate short-term and long-term parking • Close loop road at the Mission 66 duplexes • Restore impacted areas	• Relocate parking to designated areas • Designate parking with rock barriers • Limit overnight guest parking to two cars per unit • Designate short-term and long-term parking • Close loop road at the Mission 66 duplexes • Restore impacted areas
Access Road to Water Tank • Compacted gravel road is approximately 12 feet wide by 300 feet long • Existing road interrupts flow of spring water to fen • Culverts have been installed to improve water flow • Water tank requires regular maintenance and testing	• Rebuild road with permeable roadbed and narrower width than existing condition • Maintain existing culverts for flows from springs upslope	Add additional culverts under the existing road

TABLE 2-1 (Continued)
COMPARISON OF ALTERNATIVES

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
DRAKESBAD GUEST RANCH (cont.)		
Pedestrian Circulation at Drakesbad Guest Ranch		
Walkways within Drakesbad Guest Ranch • There is no definition of walkways • There are many pathways and they are deteriorating natural resources • Historic paths have been lost and many are not in character with cultural landscape	No action proposed	Minimize number of paths and define trails with low stones in keeping with historic trails
Access Road/Path to Pool and Bathhouse • Impermeable gravel road, 12 feet wide by 100 feet long, designed to accommodate service vehicles • Road prevents natural sheet flow of water to meadow	• Replace existing road/path to pool and bathhouse with a narrower profile pathway approximately 7 feet • Replace base of path with permeable base rock • Replace surface of path with grass cell pavers with native grasses	Replace existing road/path to pool and bathhouse with a boardwalk constructed for an electric golf cart or small service vehicle
Trail from Corral across meadow/fen to trail network • Existing trail is a compacted gravel road, 8 feet by 140 feet • Trail creates obstruction to water flow on south side of the meadow	• Construct 8-foot wide boardwalk in same location to allow natural drainage • Restore impacted area by reseeding with native plants • Remove causeway material (22 cubic yards of soil) from the meadow	Install additional culverts in increase water flow to meadow
Land Use		
Corral The corral serves a historic use, and is used by visitors at Drakesbad Guest Ranch. Corral features include: • Space for 20-24 horses • Tack shed • Parking area for feed and storage	• Expand upper corral into existing 'boneyard' with a footprint of 24 feet by 40 feet and historically-compatible design • Maintain tack shed in existing location • Maintain lower corral as a part of cultural landscape, but no longer use • Add bio-filtration system to southern edge of corral to mitigate effluent • Enclose seed-free feed in a new storage structure at existing propane tank area	• Construct new 60 feet by 100 feet corral, tack shed and feed storage at a site north of Warner Valley Road, outside the historic district • Construction may require grading • New seed-free feed storage building would be the same design as in Alternative 2 • Existing corral would be used for staging of rides, but horses would not be housed there • Add biofiltration system to existing corral to mitigate effluent

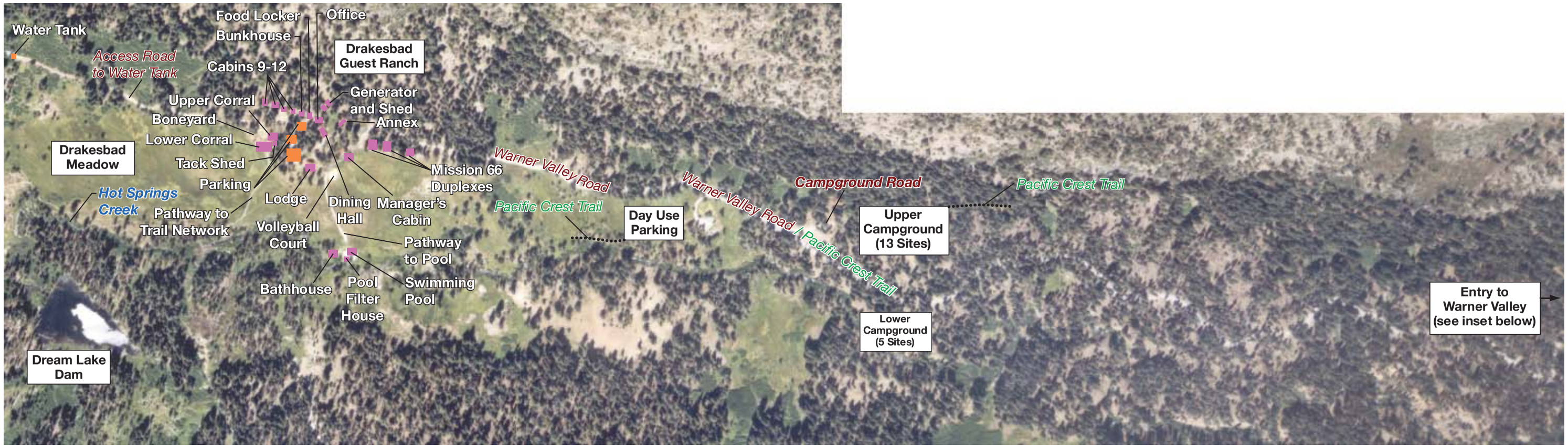
TABLE 2-1 (Continued)
COMPARISON OF ALTERNATIVES

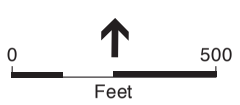
Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
DRAKESBAD GUEST RANCH (cont.)		
Land Use (cont.)		
Volleyball Court Existing 500 square foot sand court is located in historic district and impacts the viewshed	• Remove sand court and restore disturbed area with native plants • Relocate volleyball court to a site near the east side of the swimming pool	• Remove sand court and restore disturbed area with native plants • Relocate volleyball court to a site near the east side of the swimming pool
Dining Hall Service Area • Service area at the rear of the dining hall is used for deliveries, staging, and other work functions • Service area also serves as an outdoor employee break area • There is a seasonal wetland between generator and dining hall	• Re-grade dining hall service area to direct surface flow away from building, directing flows to adjacent wetland • Provide a picnic table on a small patio as an employee break area • Bury electrical lines	• Re-grade dining hall service area to direct surface flow away from building, directing flows to adjacent wetland • Bury electrical lines
Outdoor Dining Area Gravel surface is not visually compatible with park setting and the surface is not ADA-compliant	• Resurface patio with material that is more compatible with the site and ADA-compliant	• Remove outdoor dining area
Walls at Cabins # 9,10,11,12 Concrete block retaining walls at cabin entry for sitting area.	Replace concrete block walls with stone walls	Cover existing exterior porch concrete block walls with stone veneer
DRAKESBAD MEADOW		
The meadow is a natural and cultural resource that has degraded over time due to: • reduction in water flows • introduction of non-native vegetation species • proliferation of pocket gophers and gopher tunnels Recent improvements include the installation of culverts under the road to the water tank and the damming of existing drainage ditches to create sheet flow across the meadow	• Fill man-made features with fill • Analyze all structures that divert groundwater or surface water flowpaths including roads, ditches and impoundments • Restore drainage ditches • Re-establish historic flowpaths by removing the road, and re-grading and re-vegetating the hillslope • Re-flooding trails may require additional boardwalk construction • Use seed-free feed for stock and enclose storage for hay and feed • Use biofiltration system for horse manure • Manage vegetation to maintain historic views	• Install metal sheets at key points in drainage ditches • Install culverts under roads and trails to improve sheet flow • Use seed-free feed for stock and enclose storage for hay and feed • Use biofiltration system for horse manure • Manage vegetation to maintain historic views

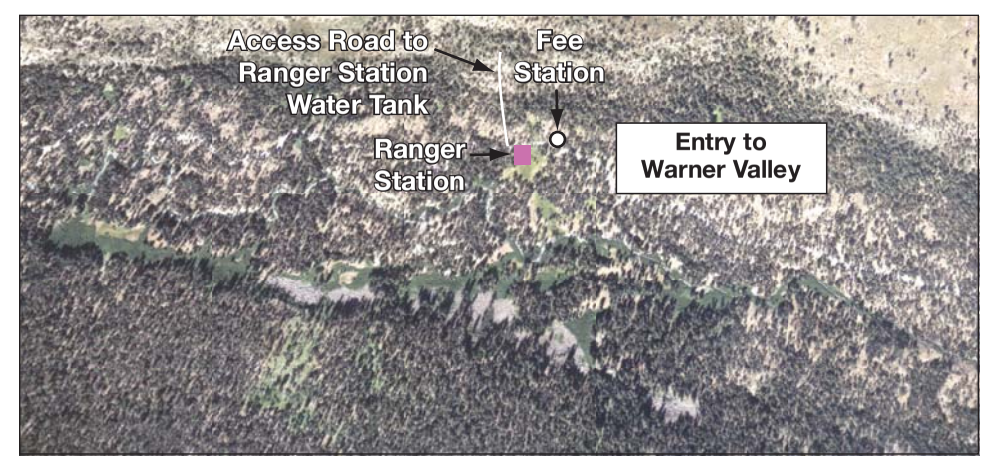
TABLE 2-1 (Continued)
COMPARISON OF ALTERNATIVES

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
DREAM LAKE DAM		
Dream Lake Dam, constructed in 1932, impounds 2.7 surface acres of water • The dam is a contributing feature to historic district and is used by Drakesbad Guest Ranch guests for fishing, bird watching and canoeing • Structural deficiencies include sloughing, sinkholes, settlement, seepage, and detrimental vegetation are affecting dam structure	• Remove existing dam • Dam removal and restoration would require heavy equipment at site • Remove approximately 32 trees • Restore area with a channel network stabilized by log and rock step pools, a functioning floodplain and associated flood plain wetlands	• Reconstruct existing dam to meet Bureau of Reclamation standards • Dam reconstruction would require heavy equipment at site • Remove approximately 32 trees • New dam would be higher than existing dam and would include a 20-foot wide spillway • Diversion outlet would include a trash rack, stilling basin, sand filter, bullhead gate, valve box and energy dissipater • Soil material for dam embankment and rock materials for dam face would be imported to the Park

This Page Intentionally Left Blank







SOURCE: GlobeXplorer; ESA

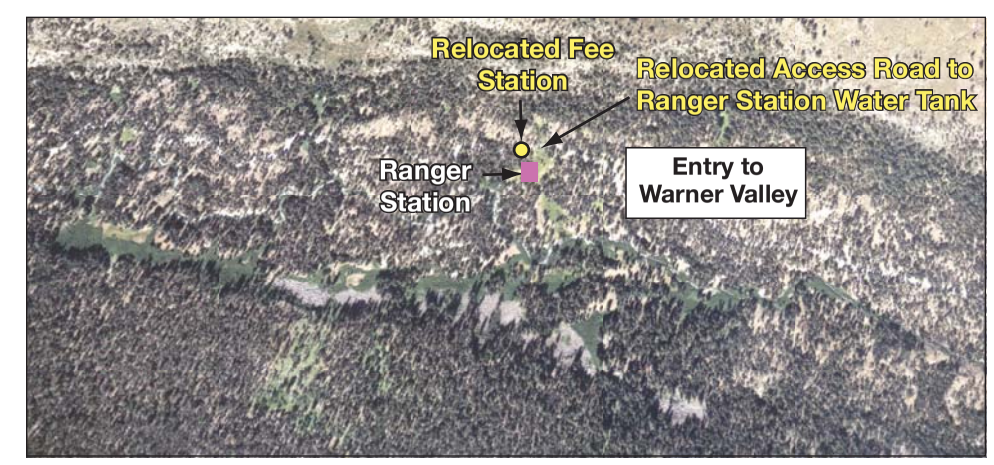
Warner Valley Comprehensive Site Plan

Figure 2-1a

Alternative 1: No Action (Existing Conditions)

Water Tank
Access Road to Water Tank
Office
Bunkhouse Cabins 9-12
Drakesbad Guest Ranch
New Concessioner Housing and Service Center
Upper Corral (expanded)
Lower Corral (no longer used)
Annex
Drakesbad Meadow (restored)
Tack Shed
Parking
Warner Valley Road (improvements to road)
Hot Springs Creek
Lodge
Dining Hall
Manager's Cabin
Mission 66 Duplexes
Warner Valley Road
Campground Road
Pacific Crest Trail
New Boardwalk to Trail Network
Restored Area
Resurfaced Pathway to Pool
Campground (18 Sites)
Swimming Pool
Pacific Crest Trail
Bathhouse (minor expansion)
New Pacific Crest Trail Connection
Relocated Day Use Parking
Entry to Warner Valley (see inset below)
Dream Lake Dam (removed)

NOTE: Yellow lettering represents a change from the existing conditions.



0 500
Feet

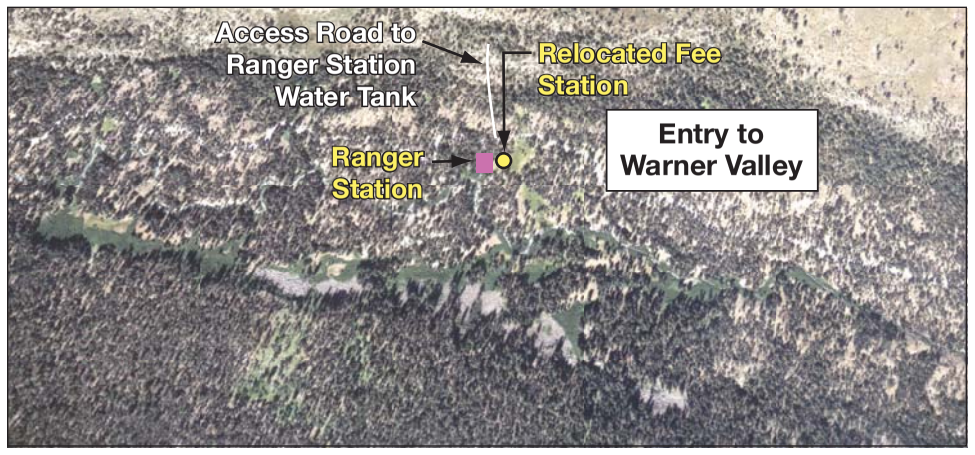
SOURCE: GlobeXplorer; ESA

Warner Valley Comprehensive Site Plan

Figure 2-1b
Warner Valley Alternative 2

Water Tank
Access Road to Water Tank (add additional culverts)
Food Locker
Office
Bunkhouse Cabins 9-12
Drakesbad Guest Ranch
New Concessioner Housing and Service Center
New Corral, Feed Storage and Tack Shed
Drakesbad Meadow (restored with metal check dams)
Upper and Lower Corral (used for staging only)
Annex
Warner Valley Road (improvements to road)
Mission 66 Duplexes
Campground Road
Pacific Crest Trail
Hot Springs Creek
Parking
Lodge
Dining Hall
Manager's Cabin
Campground (13 Sites)
Pathway to Trail Network (construct additional culverts)
Restored Area
replace pathway to pool with a boardwalk
Bathhouse (minor expansion)
Swimming Pool
New Pacific Crest Trail Connection
Relocated Day Use Parking
Entry to Warner Valley (see inset below)
Dream Lake Dam (reconstructed

NOTE: Yellow lettering represents a change from the existing conditions.



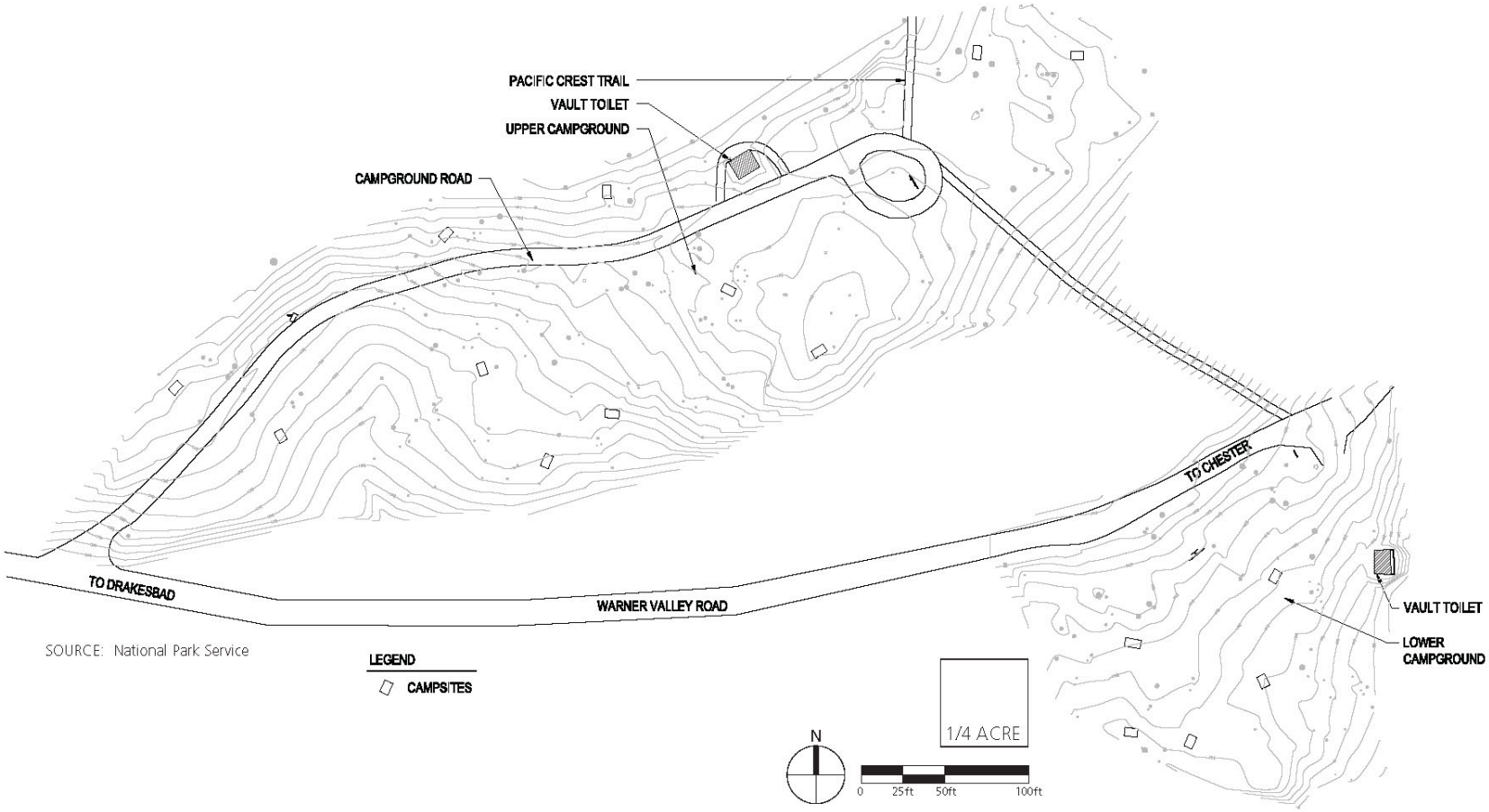
0 500
Feet

SOURCE: GlobeXplorer; ESA

Warner Valley Comprehensive Site Plan

Figure 2-1c
Warner Valley Alternative 3

THIS PAGE INTENTIONALLY LEFT BLANK



Warner Valley Comprehensive Site Plan ▪

Figure 2-2
Campground and Pacific Crest Trail – No Action

There is a steep slope from the campsites down to the creek that is hazardous for visitors. The proximity of the campsites to the creek creates an adverse impact on the creek due to erosion produced by the campers. Traffic on Warner Valley Road creates dust that wafts into the lower campground.

The upper campground is located on the north side, above the Warner Valley Road, and is the larger of the two existing campgrounds. The campground is large enough to accommodate additional campsites. Delineation of parking areas is poor, resulting in degradation of the vegetation. Dust from Warner Valley Road is also an issue here, but less so than for the lower campground.

The Pacific Crest Trail exits on the north side of the upper campground. The campground and Pacific Crest Trail have poor connections to the rest of the Warner Valley trail system. The existing connection is along Warner Valley Road towards Drakesbad Guest Ranch, which creates a hazardous situation for the hikers and diminishes the visitor experience.

The existing day use parking is a gravel lot accommodating approximately twelve cars. The area also has a vault toilet, potable water and picnic tables for day hikers. The existing day use parking is located in a wetland area and is too small to accommodate parking for the day users and overflow parking from Drakesbad Guest Ranch. Trail connections for the major destinations to the south begin at the day use parking (**Figure 2-3**).

Day Use Parking

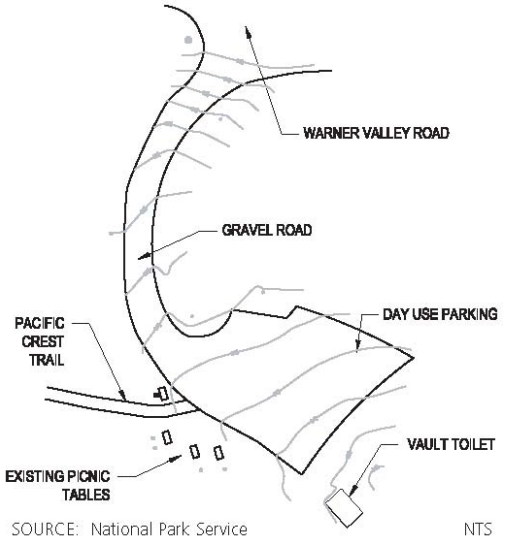


Figure 2-3
Day Use Parking – No Action

Drakesbad Guest Ranch

Drakesbad Guest Ranch Historic District encompasses the entire 440 acres owned by the Sifford family during the period of significance. The focus of most guest services centers on the primary building cluster around Drakesbad Lodge. Drakesbad Meadow is adjacent to this primary cluster and is part of two contributing views. Contributing resources farther afield include Dream Lake Dam, Boiling Springs Lake, and three trails. Ten of the buildings at Drakesbad Guest Ranch remain from the historic period and are listed in the National Register of Historic Places as contributing resources, including the lodge, dining hall, food locker, bunkhouse, and six cabins. Individual guest cabins are located east and west of the core building complex (**Figure 2-4**).

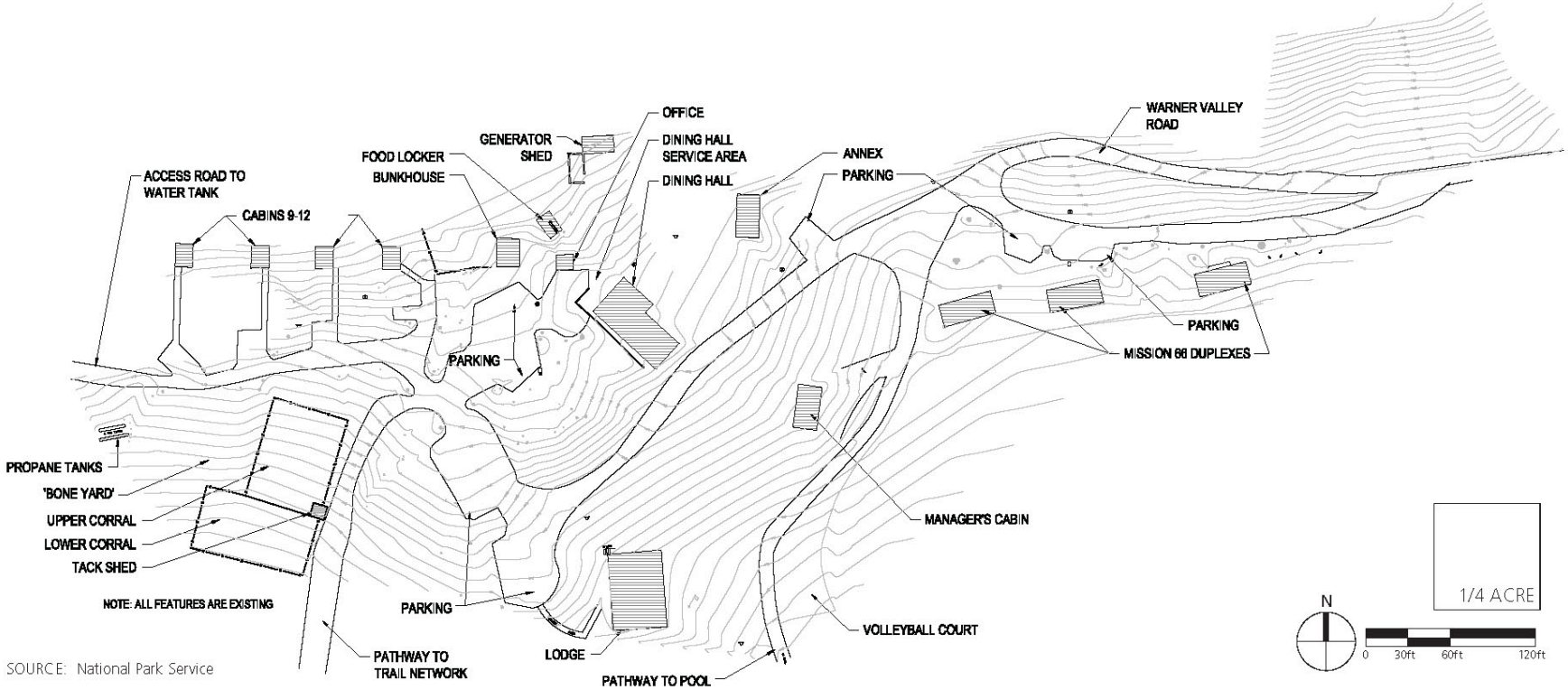
All of the historic buildings are vernacular in style, wood-frame with gable metal roofs. The building cluster also contains more contemporary buildings including: three Mission 66 duplexes, a tack room, a concession office, and a generator building. With the exception of the concrete generator building, the modern buildings are all wood-frame and are compatible with the architectural character of the historic buildings in terms of material, scale and massing (NPS, 2005). Areas that are being reviewed and considered for change include concessioner housing, service facilities, the bathhouse and pool area, and circulation, as well as several small site features.

Concessioner Housing and Service Center

Service facilities and housing in Warner Valley have been added in an ad-hoc fashion to the historic core of Drakesbad Guest Ranch over the years. These uses include staff housing (now partly accommodated in temporary travel trailers), storage of building materials and other supplies (the ‘bone yard’), propane tanks, generator and parking for staff.

Trailers and Laundry / Concessioner Housing Building

The current concessioner housing is not large enough to house the staff members and is of substandard construction. Concessioner staff housing within the Drakesbad Guest Ranch structures includes a dormitory above the dining hall (holds eight employees) and a small dormitory above the laundry, called the bunkhouse (holds three employees). These do not provide adequate capacity, therefore three travel trailers are used to accommodate four more staff members. One trailer is 16-feet long, one is 20-feet long and one is 28-feet long. They are located in a space between the bunkhouse and the nearest cabin. There are no utility hook-ups for the trailers and the arrangement does not provide adequate privacy or social space for the employees. The trailers are difficult to screen visually and they are not compatible with the cultural landscape. The most recent concession contract stipulates that use of travel trailers will no longer be allowed in Drakesbad Guest Ranch (NPS, 2009).



Warner Valley Comprehensive Site Plan ■

Figure 2-4
Drakesbad Guest Ranch - No Action

Small Scale Features

Over the history of Drakesbad Guest Ranch, small-scale features have been added to the site as needed. The features have not always been placed in the best location, but due to their necessity, some cannot be eliminated. These items include the dumpster, propane tanks, site storage at the 'bone yard', concrete block walls at cabins 9, 10, 11 and 12, generator, sewer line and overhead power lines (all utility connections).

Dumpster

The dumpster is currently located at the entrance to the historic district and is visible from the road.

Propane Tanks

The propane tanks are located on the west side of the corral just below the water tank access road. The tanks have a visual impact on the cultural landscape and detract from the visitor experience.

Site Storage at the 'Bone Yard'

The 'bone yard' is located between the existing corral and propane tanks. It serves as a storage area for various items at Drakesbad Guest Ranch such as palettes, feed for the horses, building materials and other miscellaneous items. There is no screening of the 'bone yard', so it has a visual impact on the cultural landscape and detracts from the visitor experience.

'Bone Yard'

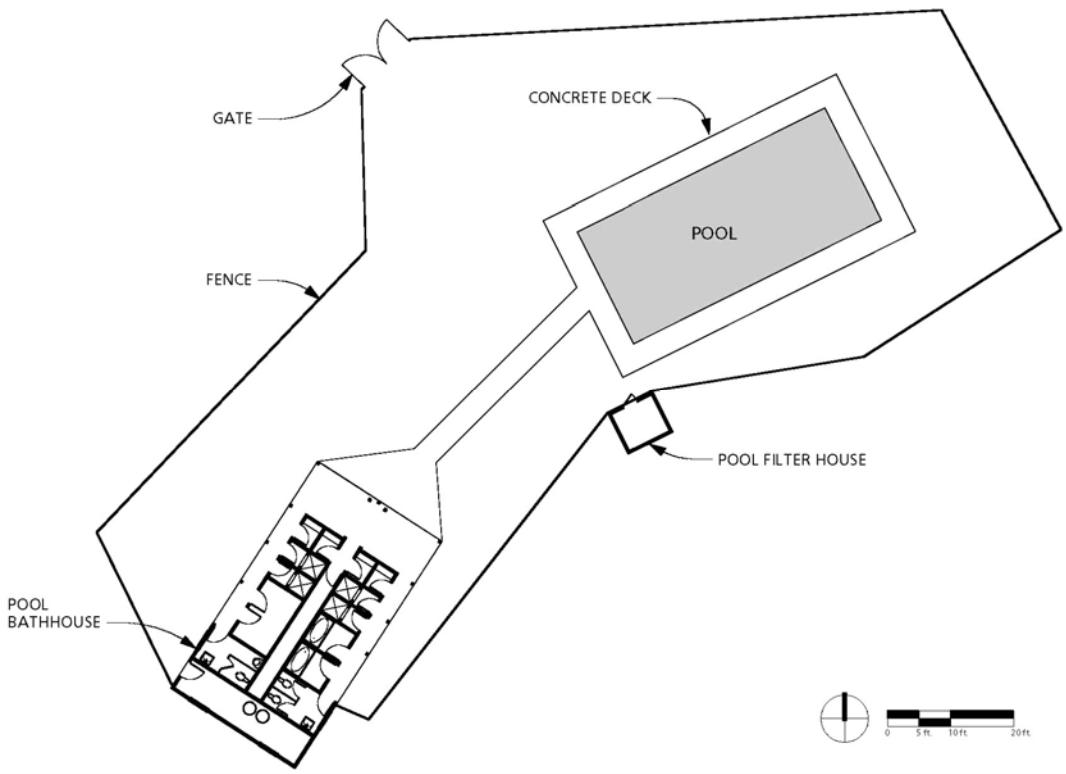
Bathhouse and Pool

The existing bathhouse and pool provide facilities for swimming, bathing and massage. The existing bathhouse facilities are in disrepair, are not accessible to the physically disabled, and do not provide sufficient storage space or an adequate quantity of showers and massage rooms. The filter house is located next to the pool deck; it is noisy and it obstructs the view of the creek. The pool coping and decking do not match the historic character of Drakesbad Guest Ranch. The stream banks along Hot Springs Creek are unstable and eroded areas have been armored with cobble/rock-filled gabion mesh baskets.

Bathhouse

The existing bathhouse contains a women's restroom (two toilets, one sink), a men's restroom (one toilet, one urinal, one sink), two private bathtub compartments, four private shower compartments, four private changing stalls, a massage room with two doors, and a storage/ mechanical room at the rear of the building. The spaces are arranged along both sides of a plumbing chase and doors open to a porch that wraps three sides of the building. The porch is 2 feet-6 inches deep at the north and south and 7 feet deep facing the pool. The building is wood frame construction clad in wood lap siding with 6-inch by 6-inch wood posts supporting the roof, and a low slope (approximately 3:12) gable roof with metal roofing. The overall dimensions of the bathhouse are 23 feet-7 inches by 43 feet-1 inch (1016 square feet). The building is not a contributing structure to the historic district (**Figure 2-5**).

The filter house contains filter and pump equipment for the pool operation. The filter house is a wood frame structure clad in wood siding. The overall dimensions are 7 feet-3 inches by 8 feet (58 square feet). The building is not a contributing structure to the historic district. As noted above, the filter house is located next to the pool deck. It is noisy and it obstructs the view of the creek, and therefore detracts from the visitor experience.



Warner Valley Comprehensive Site Plan ▪

Figure 2-5
Bathhouse and Pool – No Action

Circulation at Drakesbad Guest Ranch

Site circulation is rural in character with dirt/gravel roads and rocks/logs defining the circulation patterns. Over time, the edge "creep" of parking areas and roads has created large impacted areas and unclear zones for traffic. In addition, construction practices of placing compacted bases on roads and trails have obstructed natural water flow, damaging the meadow and fen environment. Some of the circulation features that need to be addressed are parking areas, walkways, trails and the access road to the water tank.

Parking

Guests and staff currently park vehicles wherever there is clear space to park, which creates a disorganized and confusing parking pattern. Though this lack of defined parking makes it difficult to accurately count parking stalls, approximately 70 exist within Drakesbad Guest Ranch. The parking areas tend to "creep," slowly expanding over time due to a lack of edge definition. As parking creeps, natural areas are disturbed, which has an adverse impact on the natural resources and cultural landscape, detracting from the visitor's experience.

Access Road to Water Tank

The access road to the water tank that serves Drakesbad Guest Ranch is a compacted gravel road, approximately 12 feet wide by 300 feet long. Acting as an obstruction, the existing road does not allow natural flow of spring water to the fen. To improve water flow to the fen, NPS staff has installed culverts in recent years. The water tank requires regular maintenance and testing; however, the road is wider than necessary. Culverts introduced in the last three years have restored some flow but create point discharge instead of uniform flow.

Pedestrian Circulation

Walkways and Trails within Drakesbad Guest Ranch

The walkways within Drakesbad Guest Ranch have multiplied over the years, creating more pathways than necessary. Most paths do not have defined edges and historic path alignments have been abandoned. Many of the paths have a negative impact on the natural resources.

Path to Bathhouse

The two major trails/paths that lead from the Drakesbad Guest Ranch across the meadow are discussed below.

The first, the access trail/road to the pool and bathhouse, is an impermeable gravel road that creates an obstruction to water flow in the meadow. The trail is approximately 12 feet wide by 100 feet long, designed to accommodate service vehicles.

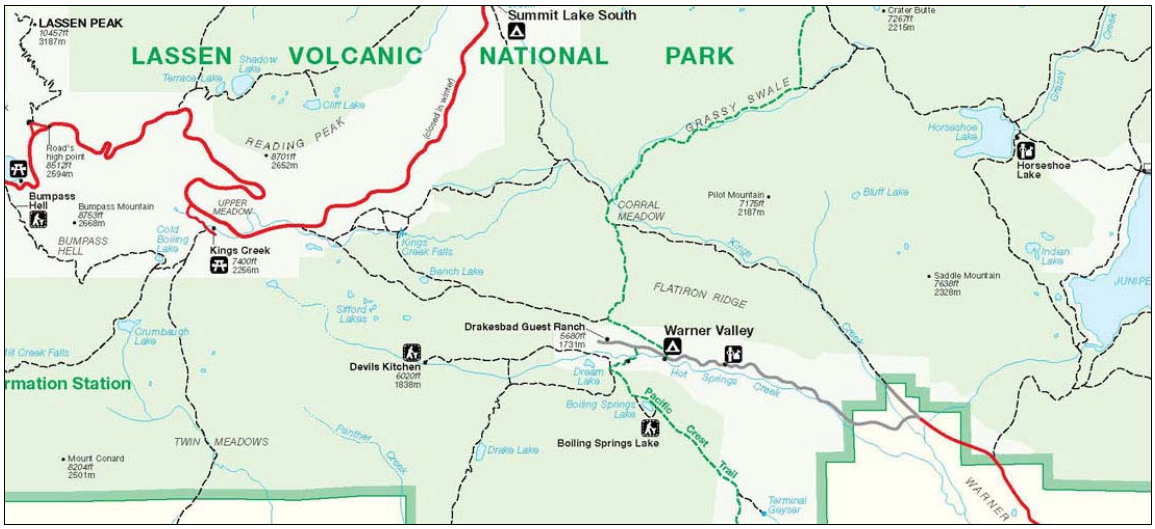
The second major trail from the Drakesbad Guest Ranch leads from the corral to the trail network on the south side of the meadow. The trail construction is compacted gravel, approximately 8 feet wide by 140 feet long, which creates obstruction to water flow in the meadow/fen complex.

Trails

A number of hiking trails lead from Drakesbad Guest Ranch to area destinations such as Devils Kitchen, Boiling Springs Lake, Kings Creek and Summit Lake. The Pacific Crest Trail also passes through Warner Valley. Although it crosses Warner Valley Road, it does not continue directly on the other side, causing hikers to travel along the road a short distance in order to continue on the trail. Overall, the extensive network of trails provides access to many other lakes, creeks and meadows in Warner Valley, creating a variety of recreational opportunities for park users.

Another cultural landscape issue is consideration of the reopening, preservation, and maintenance of historic trails (Head of the Valley Trail, Kitchen Trail, High Trail above Devils Kitchen, South trail along Hot Springs Creek from campground to east park boundary).

Ongoing trail maintenance is critical to the Warner Valley trail network. The NPS has developed standards for regular trail maintenance to protect and restore the natural habitat and resources for the rich variety of plant and wildlife found in the park. These standards include the use of water bars to stop trail erosion, constructing boardwalks in wetland areas, as well as general trail clearing and tread upkeep.

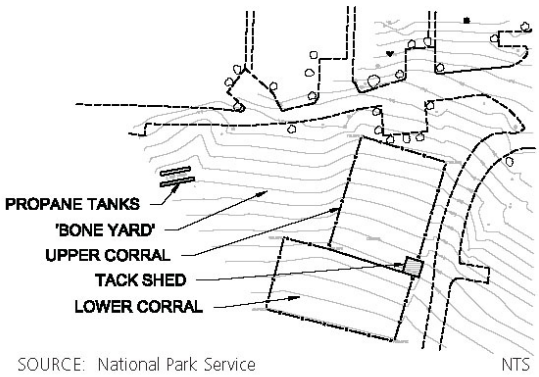


Map of the Warner Valley Trail Network

Land Use

Corral

The corral serves a historic use, and is a significant amenity for the visitors at Drakesbad Guest Ranch. The corral holds up to 24 horses and is approximately 7,500 square feet (**Figure 2-6**). In addition to the corral, there is a small tack shed and a small parking area used for feed and general storage. Some adverse environmental impacts from the corral are: the effluent flows into the meadow; seed from hay spreads non-native grasses into the meadow; wildlife feed on the hay; and the odor from the corral drifts into the Drakesbad Guest Ranch area.



Corral and Tack Shed

Figure 2-6
Corral – No Action

Volleyball Court

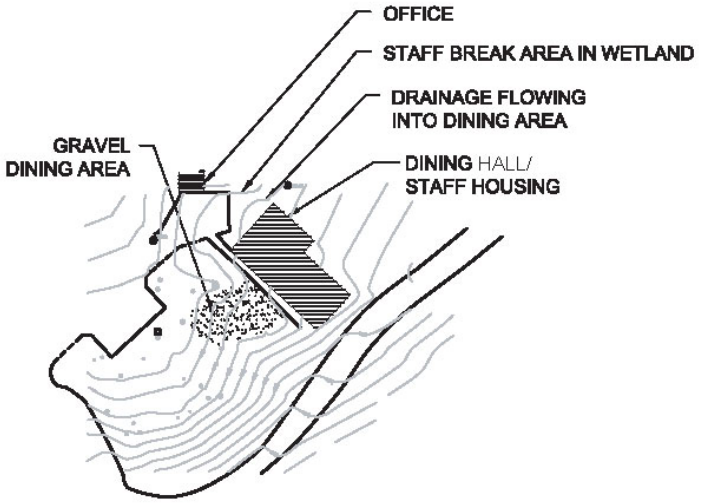
The volleyball court is a non-historic feature of Drakesbad Guest Ranch, and is not part of the cultural landscape. The sand court is approximately 500 square feet. It detracts from the experience of the cultural landscape and is located within the sensitive scenic viewshed of Mt. Harkness from the deck/porch of the Drakesbad lodge.

Dining Hall Service Area

The service area at the rear of the dining hall is used for deliveries, staging and various work functions. It also serves as an outdoor employee break area. Although the area is partially screened with seasonal fencing, it is disorganized and unsightly for visitors to Drakesbad Guest Ranch. There are also drainage problems behind the building. A seasonal wetland is located between the generator and the dining hall. Snowmelt and spring water drain toward the dining hall causing flooding problems for the dining hall. The nearby generator is noisy and overhead electrical lines are unsightly.

Outdoor Dining Area

The outdoor dining area is located adjacent to the dining hall. It consists of a gravel surface that is not visually compatible with the cultural landscape setting or the natural setting (**Figure 2-7**). The surface is not firm enough for the use and is not ADA-compliant. The dining area has four tables and is located on an area of approximately 160 square feet.



SOURCE: National Park Service

Warner Valley Comprehensive Site Plan

Figure 2-7
Dining Area – No Action

Walls at Cabins #9, 10, 11, 12

The cabins located at the northwest edge of Drakesbad Guest Ranch directly north of the corral have concrete block retaining walls that were added to provide a sitting area for each cabin. The concrete block does not fit the historic character of Drakesbad Guest Ranch (see Figure 2-3).

Drakesbad Meadow

Drakesbad Meadow is a major natural and cultural resource for Warner Valley that has degraded over time due to reduction in water flows and introduction of non-native vegetation species. The reduction of water flows has led to both the proliferation of pocket gopher tunnels, and the reduction of native species that require water flow. Non-native vegetation species have been introduced into the meadow ecology primarily from the spreading of seeds found in the feed for the horses at the corral. However, there has been some improvement to water flow, species diversification and overall fen ecology as a result of the actions taken as part of the study by researchers from Colorado State University. These actions include installing culverts under the road to the water tank and damming of some of the existing drainage ditches to create sheet flow across the fen.

Dream Lake Dam

Dream Lake Dam, located across Hot Springs Creek southwest of the Drakesbad Guest Ranch building core, impounds approximately 2.7 surface acres of water that is up to 5-feet deep, known as Dream Lake (**Figure 2-8**). The dam was originally constructed in 1932 and was reconstructed after failures in 1938 and 1952. Dream Lake Dam is a contributing resource (structure) of the historic district because it was constructed within the period of significance of the historic Drakesbad Guest Ranch (Sifford, 1994). Drakesbad Guest Ranch guests use the lake for fishing, bird watching and canoeing.

Warner Valley Comprehensive Site Plan ▪

Figure 2-8
Dream Lake – No Action

The dam is an earthen structure and was constructed from soils extracted from nearby borrow pits, to the southwest of the lake. Soils were not properly compacted when the dam was constructed, and are characterized by excessive moisture content.

Four spring-fed tributary streams feed into Dream Lake. The water level is regulated by a spillway and associated bypass channels on the north side of the lake, however there is no operational low-level outlet pipe. Beavers have constructed dams at the spillway, impeding spillway flow and causing overtopping at low points in the crest of the dam.

The overall lack of maintenance at the dam and the impact of beaver activity has left the dam in a weakened state with a risk of failure (NPS, 2008). A Condition Survey Report completed in November 2000 to evaluate the downstream hazard classification of Dream Lake Dam reported that, although the dam had numerous deficiencies, the dam was a low-hazard potential structure due to its small size. No loss of life is expected to occur downstream if the dam were to fail (Graham, 2000).

2.1.2 Alternative 2 (Preferred)

Alternative 2 is the preferred alternative and was recommended during the Choosing by Advantages workshops conducted by NPS staff in August of 2005 and June 2008.

Entry to Warner Valley

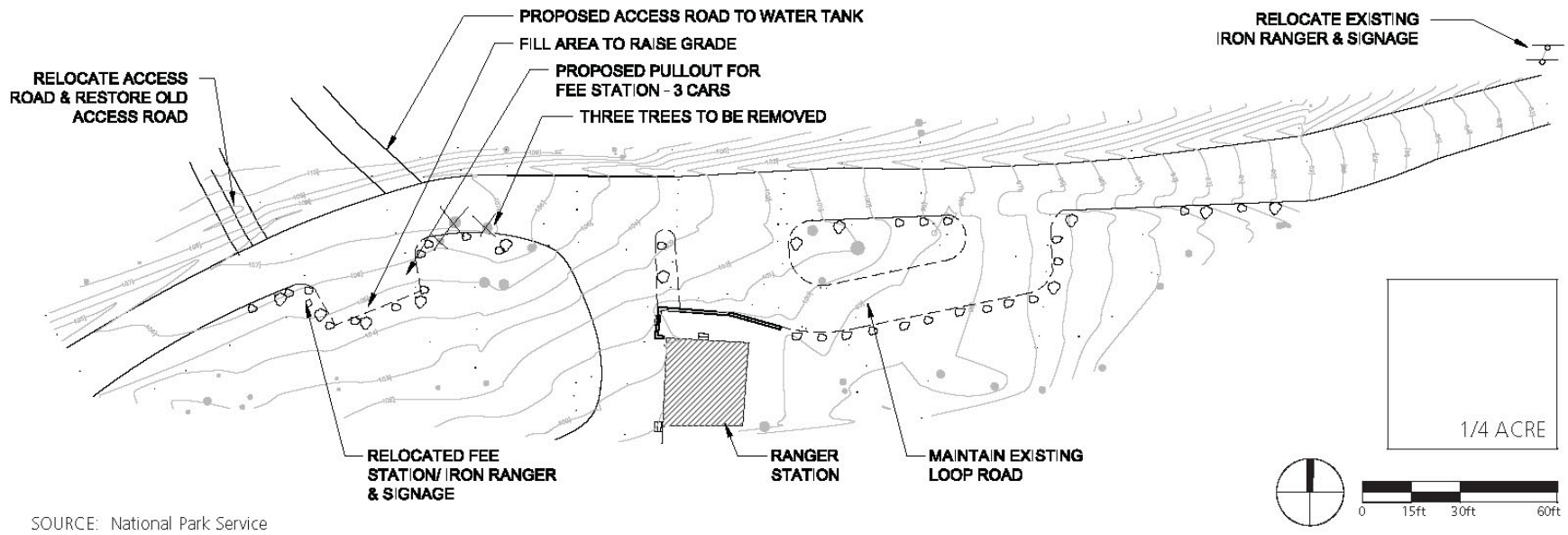
The preferred alternative for the entry has two major components; relocating the fee station and creating a new access road to the water tank. Details of the proposed changes are as follows.

Fee Station

The fee station would be moved to a new location west of the ranger station at an existing pull out on the south side of the road to increase visibility for monitoring and protecting the fee station and the money kept within. The existing roadbed would be restored by outsloping the existing road bed back to the original contours and reseeding it with native plants (**Figure 2-9**).

Existing grade would rise approximately 2 feet in the lower corner of the pull out in order to level the area, by importing approximately 12 cubic yards of fill from construction of the new road to the water tank (discussed below).

Also part of this proposed alternative would be the removal of three trees with 24-42-inch diameter for improved visibility along road. Parking would be defined with buried rocks or logs as shown in Figure 2-9.



SOURCE: National Park Service

Warner Valley Comprehensive Site Plan ▪

Figure 2-9
Entry to Warner Valley – Alternative 2 (Preferred)

Access Road to Water Tank at Ranger Station

The second proposed improvement to the area is construction of a new service road to the water tank and removal of the existing road from the drainage, which currently diverts flow and causes erosion. The new road would be built on the ridge to the east of the existing road, and the existing roadbed would be restored by reseeding with native plants. The new road would be a minimum width of 8 feet and 130 feet in length with 1 to 2 foot cuts as needed for a rock road base. Cut material would be used as the fill needed for the fee station pullout discussed above. The new road alignment would require removal of two small diameter white fir trees (less than 12 inches) and standing dead snags.

Warner Valley Road Improvements and General Road Maintenance

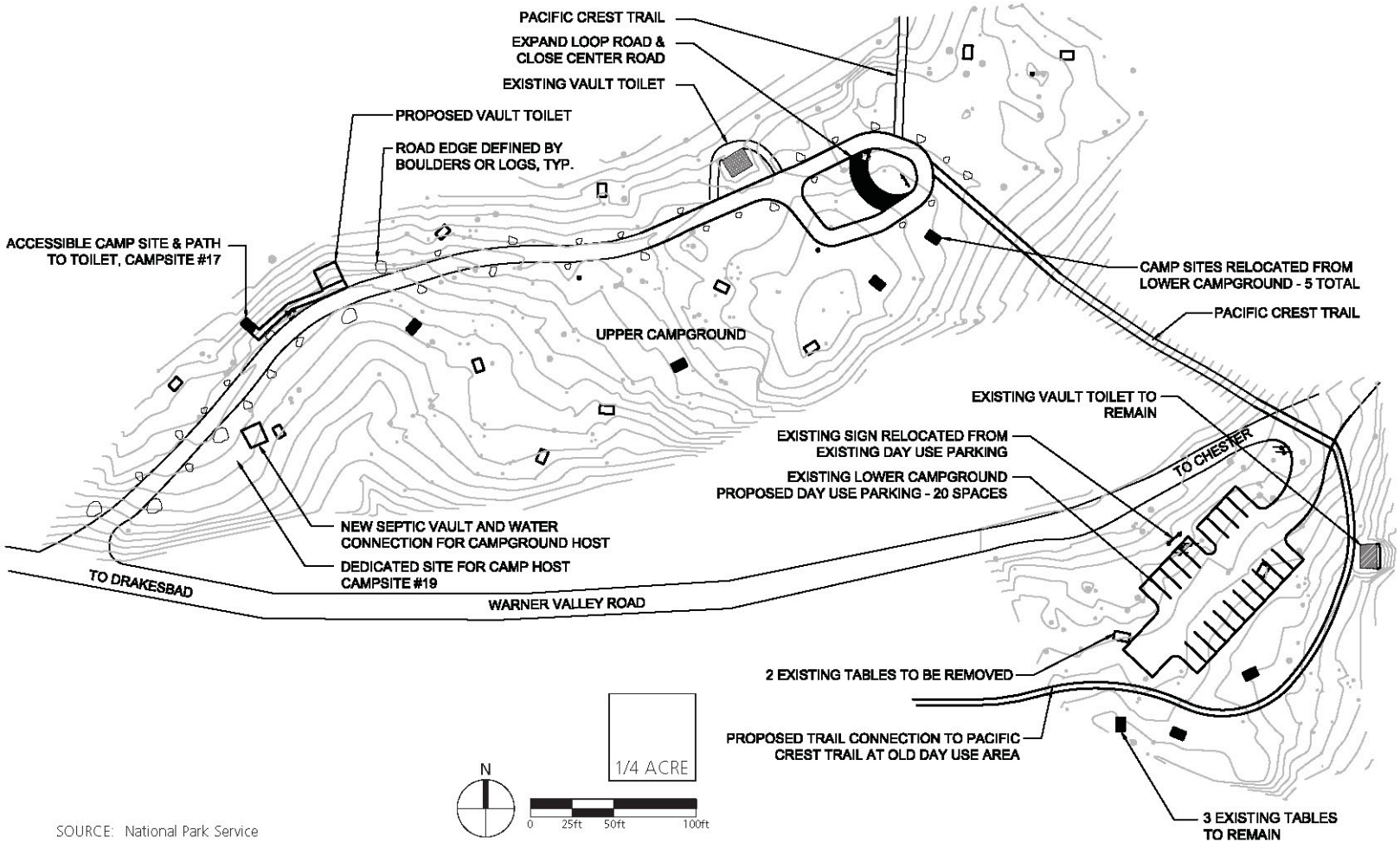
Warner Valley Road improvements in the preferred alternative would increase drainage and reduce dust. This alternative would follow actions outlined in the Warner Valley Road culvert inventory (see Appendix A), which recommends adding (6) new culverts, replacing (16) existing culverts and repairing (9) culverts. Improvements would also include the application of environmentally-approved dust suppressants in high use visitor areas, such as the campground/day use parking zone, along road sections where visibility is an issue, in front of the ranger station, and near Drakesbad Guest Ranch lodge/dining hall.

Other improvements proposed under this alternative would include replacing undersized and/or failing culverts along the entire length of Warner Valley Road, installing rock headwalls and installing uniform aggregate to reduce road dust and improve stability.

Campground, Trail, and Day Use Parking

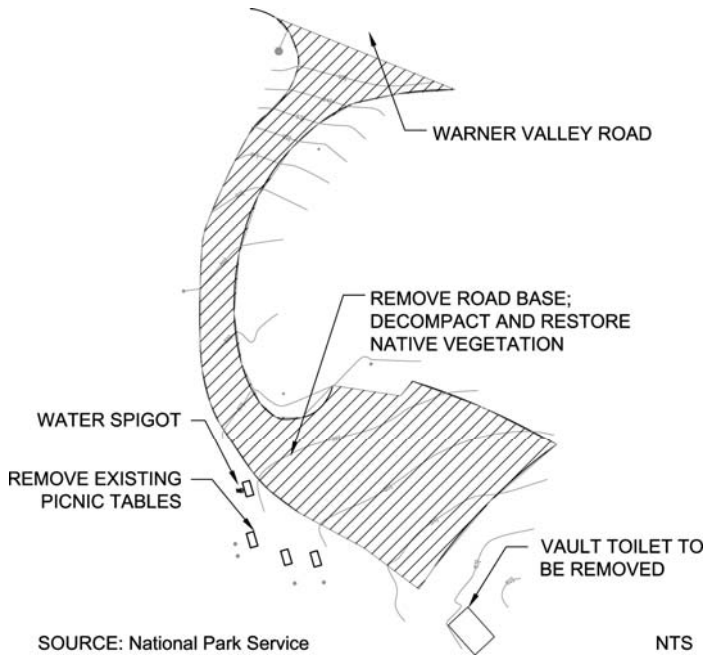
The preferred alternative would close the lower campground, relocate the five existing campsites to the upper campground, and relocate the day use parking and trailhead to this location (**Figure 2-10**). The day use area would be completely restored by removing the single vault toilet, three picnic tables, and trailhead signs (signs to be relocated to new trailhead location). The rock road base at the existing day use parking and access road would also be removed and the area decompacted using scarification techniques to a depth of 6-12 inches. The area would then be restored to a natural meadow/ wetland by reseeding and planting with propagated native plants. The existing water spigot and supply pipe would be removed and capped (**Figure 2-11**).

In the upper campground, the preferred alternative would add five sites including an accessible site to replace the campsites removed from the lower campground. Proposed elements for the accessible campsite would include accessible surfacing around the tent site as well as to the bathroom, and the installation of a table, grill and faucet designed for uniform accessibility. This plan would also include the installation of a new double-vault toilet across from campsite #17. Campsite #19 would be designated for the campground host, and would include a water connection and septic holding tank for this site. This alternative also recommends designating parking areas with buried boulders or logs and restoring the impacted areas where informal non-defined parking has destroyed nearby vegetation.



Warner Valley Comprehensive Site Plan ■

Figure 2-10
Campground, Trail, and Day Use Parking – Alternative 2 (Preferred)



Warner Valley Comprehensive Site Plan ▪

Figure 2-11
Restored Day Use Parking Area – Alternative 2 (Preferred)

In the lower campground, the preferred alternative proposes a new day use parking area that would consist of 20 gravel parking spaces defined with rock borders. It would retain three picnic tables, a water faucet and the existing double vault toilet for day use. No earthen work is required at the new parking area, but three trees with diameters between 1-2 feet would be removed.

Details of the proposed changes to the Pacific Crest Trail are as follows:

- Provide uninterrupted Pacific Crest Trail connections by constructing a new trail down slope from the Warner Valley Road paralleling Hot Springs Creek between the new day use parking at the old lower campground and the old day use parking/ trail head at the meadow.

- Install the new trail by clearing brush with no tree removal. Construct boardwalks, similar to the boardwalk shown here, over

Boardwalk in Drakesbad Meadow

any wetland areas. On the north side of Warner Valley, the trail would follow the abandoned service road through the upper campground to connect to the new day use/trailhead.

Drakesbad Guest Ranch

Concessioner Housing and Service Center

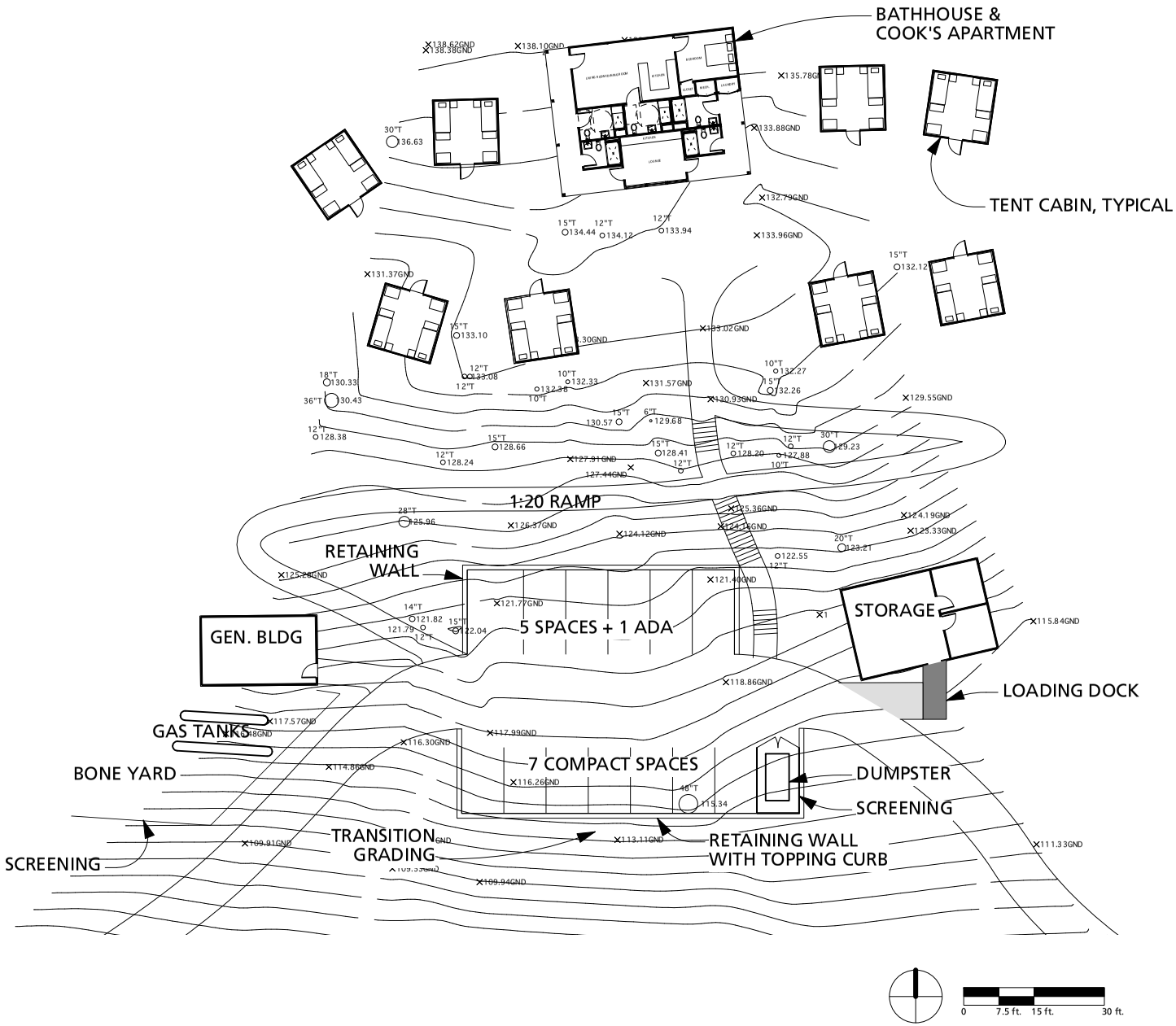
The preferred alternative proposes a new service center outside the historic district with staff housing provided in tent cabins. The service center would include concessioner employee housing, gravel road, 13 employee parking stalls, enclosed storage to replace the bone yard, the relocated generator and the relocated propane tanks (**Figure 2-12**). It would also include relocated cold food storage and dry goods storage, as well as the relocated dumpsters.

This proposed site is east of the historic district and would occupy a relatively flat area several hundred feet north of the Warner Valley Road. New construction would be partially hidden from the road. A short loop road would provide vehicle access to this area. Impacts to wetland areas that border both sides of the building site would be avoided. Construction would require removal of one 12-inch diameter, one 20-inch diameter and one 48-inch diameter tree and involve approximately 650 cubic yards of earthwork. In this alternative, housing is provided in tent cabins.

The eight double-occupancy tent cabins would be arranged in two clusters flanking a common bathhouse and an outdoor social space; the bathhouse would have an attached apartment for the cook. The tent cabins and bathhouse would be located in the flat area north of the new access road and parking. They would accommodate 17 employees including the cook. The manager would continue to be housed in existing facilities at Drakesbad Guest Ranch.

Each tent cabin would sit on a permanent wood deck supported by concrete piers. The tents would be constructed of a seasonal steel frame and fabric enclosure. The cabin footprint would be 14 feet by 14 feet (196 square feet) and the tent ridge would be approximately 15 feet above grade. At the center of each tent cluster would be an informal outdoor gathering space.

The new service center bathhouse would be a wood frame structure clad with wood lap siding and metal roofing, compatible in character with the structures in Drakesbad Guest Ranch. Overall dimensions would be 40 feet-6 inches by 31 feet-6 inches (1276 square feet) and the roof ridge would be approximately 25 feet above grade. The facilities would include four single-occupancy bathrooms with showers, one of which would be ADA-compliant. The bathrooms would be paired on the west and east sides of the building for proximity to each tent cluster. A lounge (10 feet-6 inches by 13 feet) would contain a sink and a counter and be located at the front of the bathhouse facing the primary outdoor space. A cook’s apartment (463 square feet) would be located at the rear of the bathhouse. It would include one bedroom, an adaptable kitchen, an accessible bathroom, and a living/dining area. A five-foot wide porch would wrap three sides of the bathhouse and provide entry to all interior spaces as well as a laundry closet.



SOURCE: Siegel & Strain

Warner Valley Comprehensive Site Plan

Figure 2-12

Concessioner Housing and Service Center - Alternative 2 (Preferred)

Utility mains and services would need to be extended to the building sites. Sewer and domestic water service would connect to the existing mains located in the road. Water service as it relates to fire protection would require new hydrants to be installed. Sprinkler systems, if required, would require booster pumps and additional water tanks. Sizing of all utilities would be based on demand requirements and hydrologic conditions, which would be determined during detailed design of all improvements. This alternative will investigate the feasibility of installing a hybrid power system utilizing solar and geothermal sources and to utilize clean energy technology and move away from fossil fuel use.

A new storage and delivery building with a delivery dock for trucks would be constructed and would store food and supplies that are currently stored at Drakesbad Guest Ranch, thereby reducing truck traffic into Drakesbad Guest Ranch. In addition, this building would contain some of the materials currently stored outdoors in the existing bone yard. The remainder of the materials currently stored in the bone yard would be stored outdoors in a screened area adjacent to the propane tanks. The storage building would be a wood frame structure clad with wood lap siding and metal roofing, compatible in character with the structures in Drakesbad Guest Ranch. It would be 20 feet by 30 feet and the roof ridge would be approximately 24 feet above grade. The loading dock would be 5 feet by 8 feet and would sit perpendicular to the main structure on the downhill side of the building. The combined footprint of building and loading dock would be 640 square feet.

Small Scale Features

Dumpster

The preferred alternative would incorporate the dumpster in the new service center and restore the current location of approximately 100 square feet by removing existing gravel, decompacting the soil and by reseeding with native propagated seed. Removing the dumpster from its existing location will enhance the cultural landscape.

Generator

The generator would be relocated from Drakesbad Guest Ranch to the new service area. It would be housed in a new building of the same size and configuration as the existing building and would be designed to reduce noise. It would be a wood frame structure clad with wood lap siding and metal roofing, compatible in character with the structures in Drakesbad Guest Ranch. It would be 12 feet x 22 feet (264 sq. ft.) and the roof ridge would be approximately 15 feet above grade.

Propane Tanks

The preferred alternative would relocate the propane tanks to the new service center and restore the current location of approximately 50 square feet by removing existing gravel and concrete footing and by reseeding with native propagated seed. The tanks would require concrete footings. A new feed storage building would be built at the old propane tank site. Removing the propane tanks from their existing location will enhance the cultural landscape.

Site Storage at the 'Bone Yard'

The preferred alternative proposes relocating all storage to the new service center except feed for stock, which would be stored at the old propane tank site as described above. See description above for concessioner housing and service center for further description of the 'bone yard.' Removing the 'bone yard' from its existing location will enhance the cultural landscape.

Bathhouse and Pool

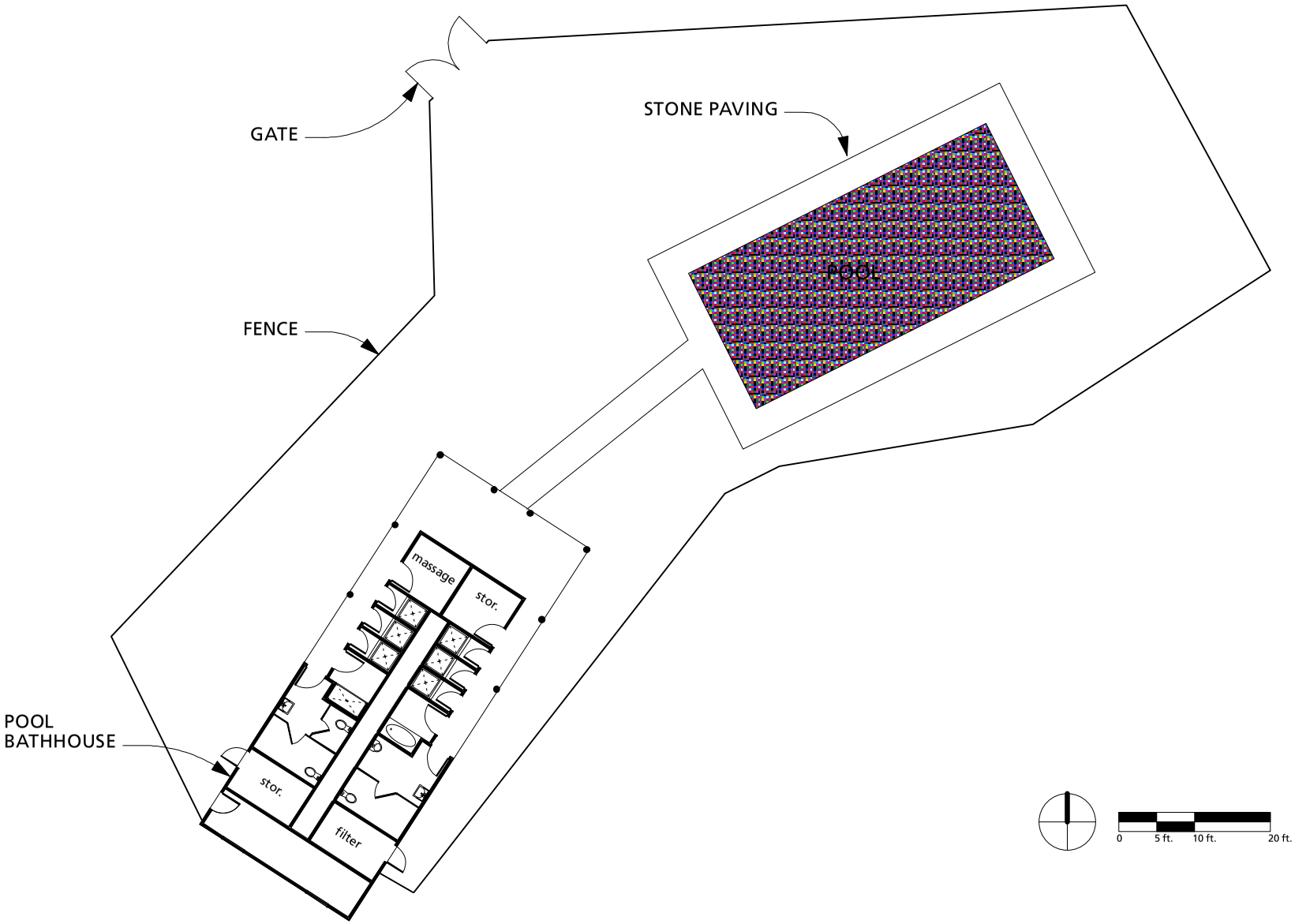
The preferred alternative would involve an addition to the existing pool bathhouse that would increase the number of showers; provide additional storage; provide ADA-accessible facilities; and relocate the pool equipment. In addition, it would provide photovoltaic power generation and water heating (**Figure 2-13**).

The existing bathhouse building would be extended 15 feet-6 inches toward the pool in order to add fixtures and to reconfigure the rooms. All plumbing fixtures and partitions would be replaced and all rooms except the storage room would be reconfigured. The bathhouse would contain an accessible women's restroom (two toilets, one sink), an accessible men's restroom (one toilet, one urinal, one sink), one accessible shower compartment, one tub/shower compartment, six standard shower compartments, one massage room, and a storage closet facing the pool. This would be an increase of three showers, a decrease of one bath compartment, and a decrease of four changing stalls. As in the existing bathhouse, rooms would be arranged along a plumbing chase and doors would open to a porch that wraps three sides of the building. The porch would be 3 feet deep at the north and south (an increase in depth to provide an accessible route of travel) and 10 feet deep facing the pool.

The existing filter house would be removed and the equipment would be relocated to a dedicated filter/pump room in the bathhouse. The storage/mechanical room at the rear of the bathhouse would remain as is. The materials in the addition would match the existing building materials. The overall dimensions of the bathhouse would be 23 feet-7 inches by 58 feet-6 inches, an increase of 365 square feet over the existing building. The current location of the filter house would be restored by reseeding area with weed-free lawn grass seed to match the existing turf around the pool.

A new rooftop photovoltaic array would provide electricity for running pumps and a new solar water heating system would supplement or replace propane-fired water heaters. Both systems would be located on the south side of the bathhouse roof, facing away from Drakesbad Guest Ranch, and would maintain current roof color and design. It may be possible to use water from the hot springs in a heat exchanging system (in lieu of the rooftop photovoltaic electrical producing system for water heating) to heat the water for restrooms and showers.

Pool coping and decking would be replaced with material more compatible to the historic material, such as stone. Sections of the eroding stream bank would be stabilized with native riparian plant species in a layered method (bioengineering).



SOURCE: Siegel & Strain

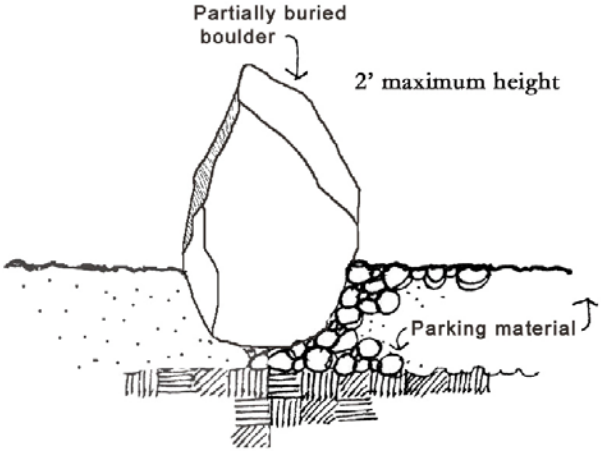
Warner Valley Comprehensive Site Plan

Figure 2-13
Bathhouse and Pool -
Alternative 2 (Preferred)

Circulation at Drakesbad Guest Ranch

Parking

The preferred alternative would designate parking areas with rock barriers and limit overnight guest parking to two cars per unit. It would also designate short and long-term parking, close the loop road at the Mission 66 units and redirect overflow parking to the new day use parking area. Impacted areas would be restored by decompacting soil and reseeding and planting with propagated native plants as appropriate (**Figure 2-14**).



Parking Barrier, as recommended in the Cultural Landscape Report

Access Road to Water Tank

The preferred alternative proposes rebuilding this road with a permeable roadbed and narrower width than the current condition. This alternative would maintain the existing culverts for flows from the springs upslope.

Pedestrian Circulation

Walkways within Drakesbad Guest Ranch

The preferred alternative proposes no action within the Drakesbad Guest Ranch walkways. The existing condition is detailed in Section 2.1.1.

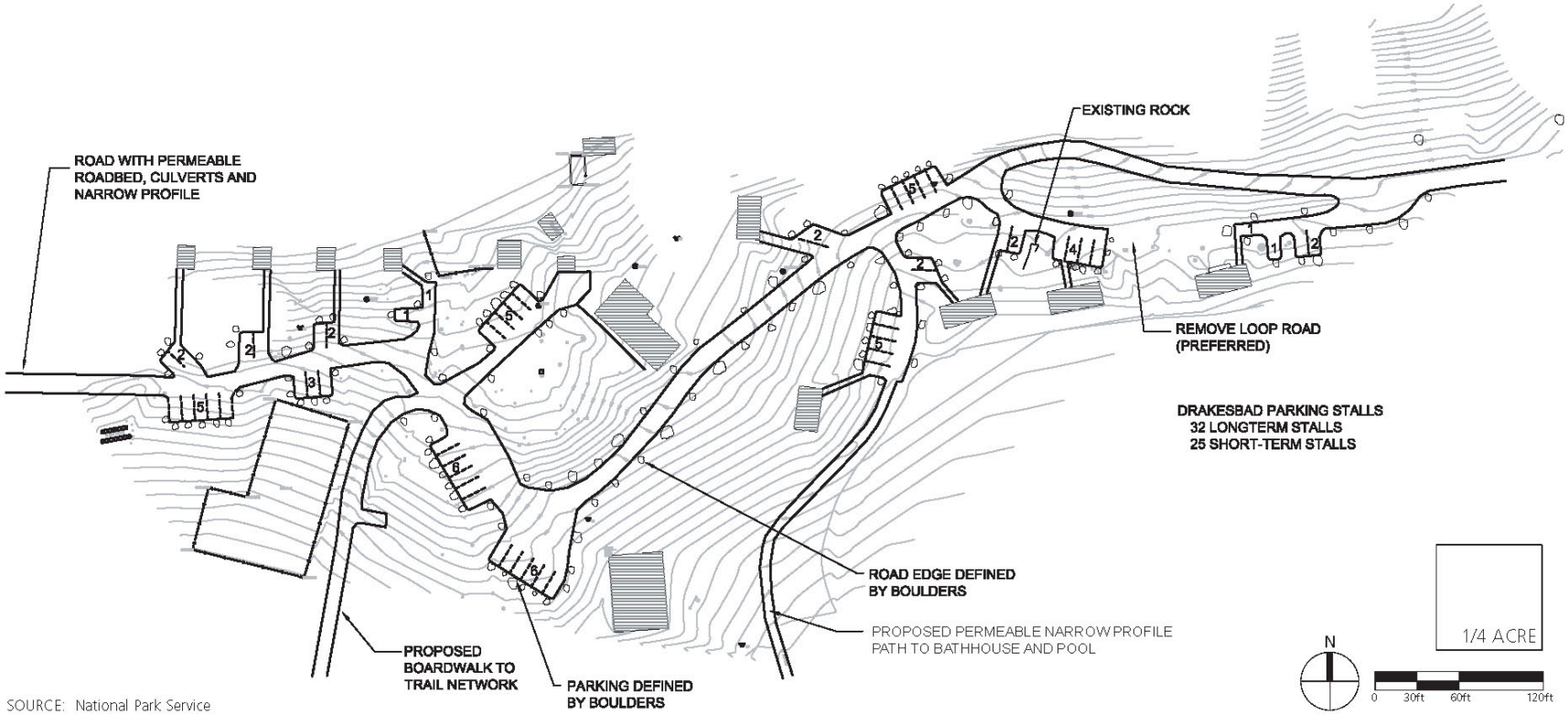
Access Road / Path to Pool and Bathhouse

The preferred alternative would replace the existing road/path with a narrower profile of approximately 7 feet suitable for smaller service vehicles. It would also replace the base of the path with permeable base rock to allow sub-surface water flow through the meadow. The surface of the path would consist of grass cell pavers with native grasses on surface, see the *Cultural Landscape Report* for detailed construction techniques for 'Turnpikes') (NPS, 2005). The bathhouse systems would be redesigned to eliminate need for propane delivery truck to pool. The bathhouse energy system would either use a photovoltaic electrical producing system or propane that would be run in underground lines from the service area.

Trail from the Corral across the Meadow/Fen to the Trail Network

The preferred alternative would construct boardwalks over existing trails to allow the natural water flow patterns to be restored. Construction would include the following major components:

- remove causeway material from the meadow and dispose of 22 cubic yards of soil;
- restore the impacted area by reseeding with propagated native plants as appropriate; and
- construct a boardwalk approximately 6-8 feet in width based on site specific requirements.



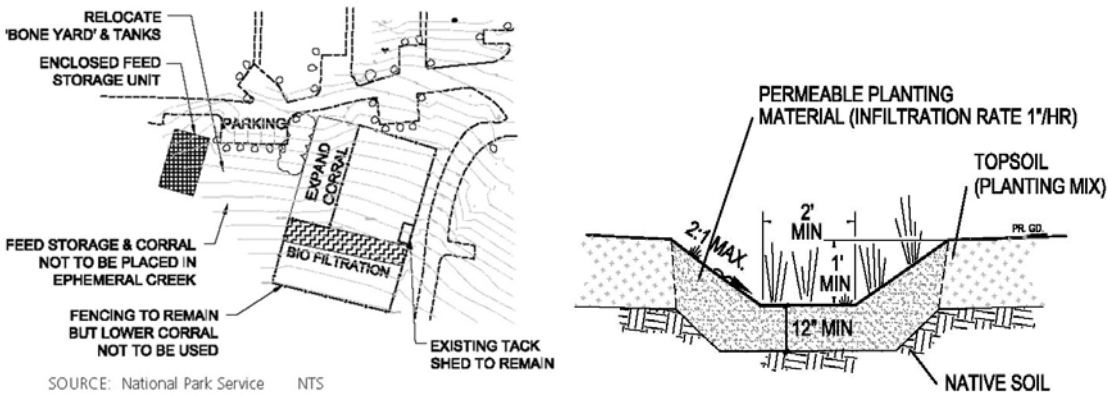
Warner Valley Comprehensive Site Plan ▪

Figure 2-14
Drakesbad Guest Ranch Circulation – Alternative 2 (Preferred)

Land Use

Corral

The preferred alternative proposes reconfiguring the corral in its current location and eliminating use of the lower corral (**Figure 2-15**). The lower corral would be maintained as a part of the cultural landscape, but not used. Additional corral space would be located in the area now occupied by the 'bone yard'. The space would not extend into the ephemeral creek between the existing 'bone yard' and propane tanks. A bio-filtration system would be added on the southern edge of the corral to mitigate effluent. The abandoned two barrel fire hydrants below the corral would be removed. As described earlier, the new enclosed feed storage structure would be built adjacent to the corral where the old propane tanks were located. Use of seed-free feed would be required. The building would have a footprint of 24 feet by 40 feet and would be a pole barn structure with wood siding and metal roof, compatible in character with the existing Drakesbad Guest Ranch buildings. The ridge of the gable roof would be 26 feet in height. The existing tack shed would remain.



Warner Valley Comprehensive Site Plan ▪

Figure 2-15
Corral – Alternative 2 (Preferred)
Bio-Filtration System

Volleyball Court

Under the preferred alternative the volleyball court would be removed from its existing site and the disturbed area restored by removing the sand and reseeding the area with native plants. The volleyball court would be relocated to a site near the east side of the swimming pool that is outside of the historic district.

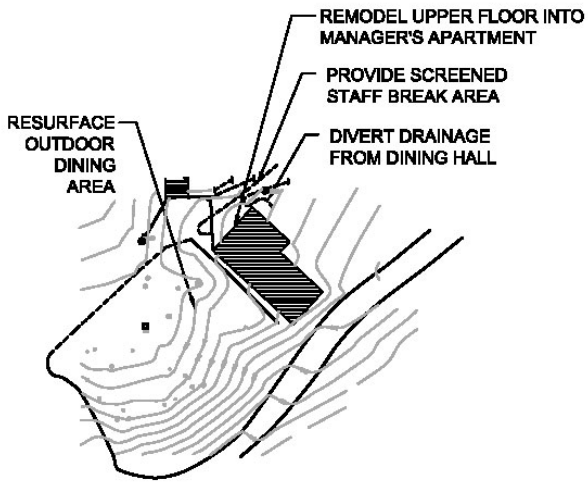
Dining Hall Service Area

The preferred alternative would re-configure the area to be more useful, efficient, and attractive.

Key elements would:

- relocate non-essential uses to a new service center including the concessioner housing, fuel tank, generator (generator building is non-contributing and would be removed), and storage;

- provide a picnic table on a small patio as an employee break area;
- re-grade the area to direct surface flow away from the building and catching run-off with a drainage system uphill from the dining hall (direct flows to adjacent wetland area); and
- bury the electrical lines.



Warner Valley Comprehensive Site Plan

Figure 2-16
Dining Area – Alternative 2 (Preferred)

Outdoor Dining Area

The preferred alternative would resurface the patio with a material more compatible with the site and more accessible, such as wood decking, soil cement or stained concrete. It would maintain the current size and number of tables and chairs. To enhance the dining experience, the adjacent parking would be relocated – see parking section.

Exterior Porch Walls at Cabins # 9, 10, 11, 12

The preferred alternative would replace the exterior porch concrete block walls with stone walls to be more compatible with the historic character.

Drakesbad Meadow

Based on the recommendations of the Patterson study (Patterson, 2005), the preferred alternative would restore fen ecology through filling man-made features with fill material (permanent restoration). Actions are needed to more fully restore the functions and values of this natural resource. To complete the restoration of the Drakesbad Meadow fen-complex, all structures that divert either groundwater or surface water flowpaths, including roads, ditches and impoundments should be analyzed. Patterson recommends the long-term restoration of drainage ditches and the water tank road to re-establish historic flowpaths by removing the road, and re-grading and re-vegetating the hillslope. Re-flooding of some trails as a result of these measures may require additional construction of boardwalks. Restoration of meadow hydrology would be planned and

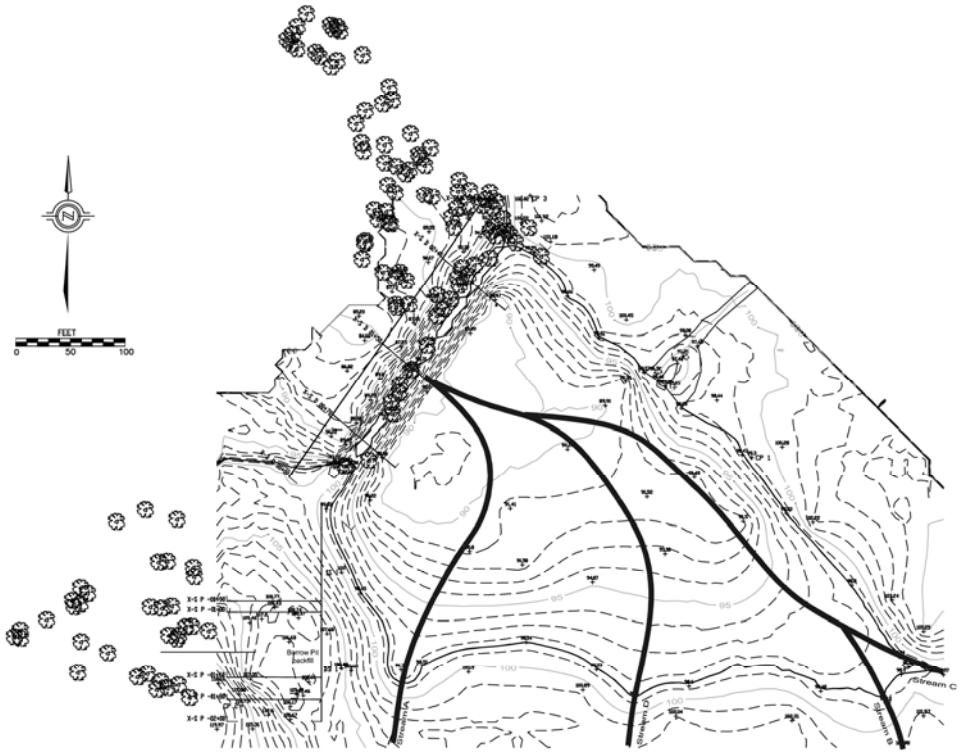
overseen by qualified personnel. Use of seed-free feed for stock, enclosed storage for hay and feed, and new biofiltration system of horse manure to minimize introduction of non-native seed to the fen would be required. See related section on the corral.

Dream Lake Dam

The preferred alternative proposes removing Dream Lake Dam and restoring the area to a stream channel.

The dam removal and restoration project would include topographic re-contouring and require the use of tools, machinery and heavy equipment at the project site (**Figure 2-17**). The equipment would need to be either airlifted to the site or brought in over temporary roads through Drakesbad Meadow and across Hot Springs Creek. An additional option would be to bring heavy equipment through the meadow over snow, before complete snowmelt and ground thaw.

Prior to dam removal, approximately 32 lodgepole pine and alder trees ranging from 2 inches to 18 inches dbh (diameter at breast height) would need to be removed from the dam embankment and its margins, and the dam would need to be cleared of roots and stumps. No specimen trees or snag trees would be removed. Trees and shrubs would also need to be removed from the old borrow pits, so that the excavated dam materials could be returned and the area could be re-graded.



Warner Valley Comprehensive Site Plan ▪

Figure 2-17
Dream Lake Dam – Alternative 2 (Preferred)

The lake would be drained by implementing a controlled breech in the late fall or early winter prior to removal. The water would be lowered by notching the dam, one to two feet at a time, using small equipment. The lake bottom would be allowed to sit over the winter. The following spring/summer, the embankment would be removed and soils replaced in the old borrow pits. The sediments stored behind Dream Lake Dam would also be excavated and are of a quality that could be used in any or all of the following ways: (a) re-grade the site for channel restoration; (b) fill and re-contour the existing borrow pits or (c) haul off-site and store for use by the NPS at a later date.

The dam and lake locale would be re-naturalized and would include a channel network stabilized by log and rock step-pools. Some tree encroachment may occur, but a narrow floodplain wetland will always exist. The four stream channels would be re-naturalized, with average streambed slopes of 2.5 to 3.5 percent. Conceptually, a certain amount of cut and fill would need to occur to re-establish the channels. The area would be re-vegetated and could become a riparian and wetland habitat (see **Figure 2-17a** and **b**).

2.1.3 Alternative 3

Entry to Warner Valley

Alternative 3 proposes two major improvements to the area; relocating the fee station and improving the existing road to the water tank.

Fee Station

For the fee station, the iron ranger (receptacle for fees) would move in front of the vault toilet adjacent to the ranger station and three parking spaces would be provided for visitors; parking would be defined with buried rocks or logs. No tree removal would be required. This alternative would require minor grading to level the area and to incorporate the fill generated by construction of an apron for the road to the water tank (**Figure 2-18**).

Access Road to Water Tank at Ranger Station

At the road to the water tank, a culvert would be installed in the drainage ditch to decrease erosion, and a chain gate would be added to limit access to the water tank and to eliminate confusion over the purpose of this road. The entrance to the road would be stabilized with an apron of concrete or grass-crete cells to minimize erosion. The apron would require 6-inch cuts generating approximately 1 cubic yard of cut that could be used at the parking area for the fee station.

Warner Valley Road Improvements and General Road Maintenance

Under this alternative, the road at the blind curve just west from the ranger station would be widened on the uphill side and two-way traffic would be maintained. The road widening would include the addition of a drainage ditch on the uphill side to decrease erosion. Proposed improvements under this alternative would include replacing undersized and/or failing culverts along the entire length of Warner Valley Road, installing rock headwalls and installing uniform

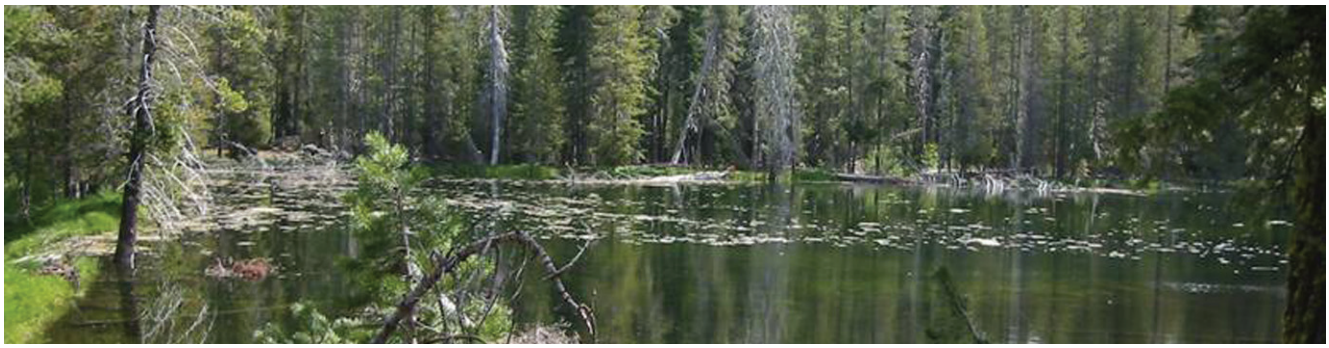
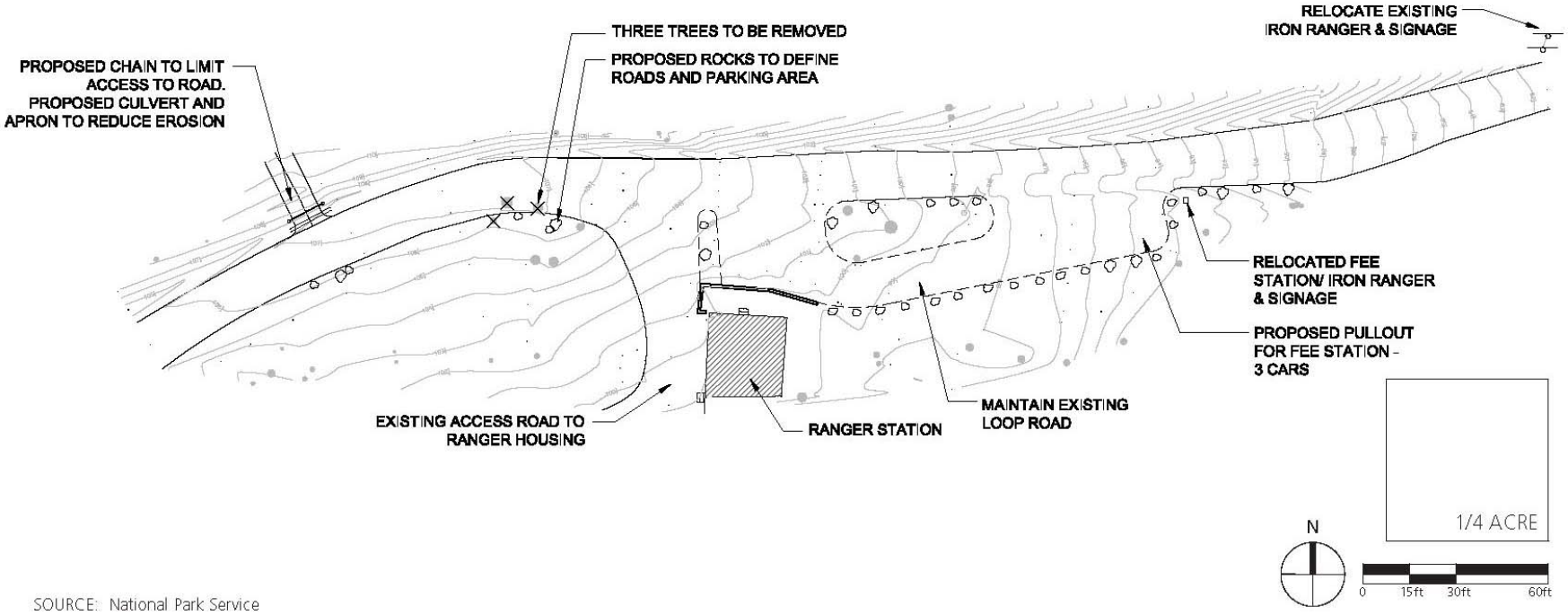


Figure 2-17a - Existing Dream Lake Dam

Figure 2-17b - Post-Dream Lake Dam Removal Rendering

SOURCE: RHAA



SOURCE: National Park Service

Warner Valley Comprehensive Site Plan ▪

Figure 2-18
Entry to Warner Valley – Alternative 3

aggregate to reduce road dust and improve stability. Alternative 3 would include actions outlined in the Warner Valley Road culvert inventory, which recommends adding (6) new culverts, replacing (16) existing culverts and doing minor maintenance on (9) culverts (see Appendix A).

Campground, Trail, and Day Use Parking

Alternative 3 proposes closing the lower campground and relocating the day use parking and trailhead to this location. The existing day use area would be completely restored as described under Alternative 2.

Details of the proposed changes to the Pacific Crest Trail are the same as described under Alternative 2.

The upper campground improvements would be the same as described under Alternative 2, however the five campsites displaced by the closure of the lower campground would not be relocated here resulting in an overall loss of those campsites.

Drakesbad Guest Ranch

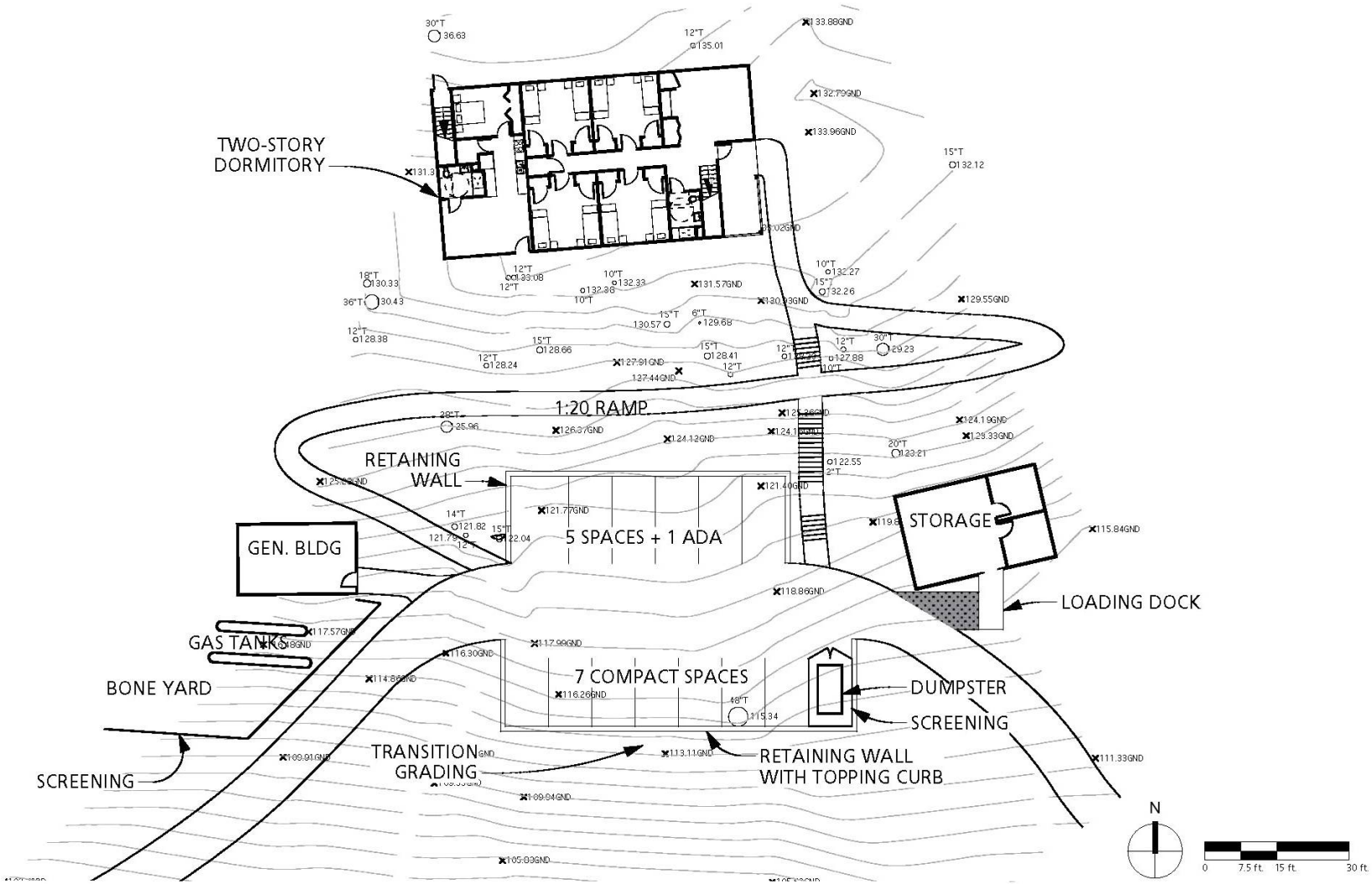
Concessioner Housing and Service Center

Alternative 3 proposes a new service center outside the historic district with staff housing provided in a two-story building. The design would include staff housing and bathrooms/showers (for 16 employees), an apartment for the cook, indoor and outdoor social areas for staff, enclosed storage to replace the 'bone yard', dry storage and refrigerated storage currently at Drakesbad Guest Ranch, and a hybrid power system including photovoltaic panels and a diesel generator.

The staff housing would consist of a two-story dormitory with a cook's apartment. The dormitory would be a wood frame structure clad with wood lap siding and metal roofing, compatible with the buildings at Drakesbad Guest Ranch. The overall dimensions of the dormitory building would be 35 feet-6 inches by 66 feet-6 inches and the roof ridge would be 38 feet above grade (**Figure 2-19**).

As in the preferred alternative, this proposed site is east of the historic district and would occupy a relatively flat bench several hundred feet north of the road. New construction would be fairly well hidden from the road. A short loop road would provide vehicle access to this area. Impacts to wetland areas that border both sides of the building site would be avoided. Construction would require removal of one 12-inch diameter, one 20-inch diameter and one 48-inch diameter tree and involve approximately 650 cubic yards of earthwork.

The double-occupancy dorm rooms and the shared bathrooms would be distributed on two floors and accessed from an interior corridor. A cook's apartment would be accessed from a separate entry at the east end of the building. Group social amenities at the west end of the building would include an outdoor gathering space in the flat area facing the entry, a front porch, and an employee lounge. The dormitory would be located on the east side of the flat area north of the new access road and parking.



Warner Valley Comprehensive Site Plan ▪

Figure 2-19
Concessioner Housing and Service Center – Alternative 3

The first floor (2361 square feet) would contain four double rooms (14 feet by 15 feet each with two closets), one accessible bathroom with shower, an employee lounge (15 feet by 15 feet with laundry closet and kitchen counter/sink), and a cook's apartment (593 square feet) with one bedroom, an accessible bathroom, an adaptable kitchen, a mechanical/laundry closet, and a dining/living area). The second floor would be accessed via two stairways: one from the first floor entry and another directly from the exterior.

The second floor (1568 square feet) would contain three double rooms (14 feet by 15 feet each with two closets), two single rooms (9 feet by 15 feet each with one closet), and two single-occupancy bathrooms with showers (Figure 2-19).

A new storage and delivery building with truck delivery dock would be constructed, as in Alternative 2, that would store food and supplies that are currently stored at Drakesbad Guest Ranch, thereby reducing truck traffic into Drakesbad Guest Ranch. In addition, this building would contain some of the materials currently stored outdoors in the existing 'bone yard'. The remainder of the materials currently stored in the 'bone yard' would be stored outdoors in a screened area adjacent to the relocated propane tanks. The storage building would be a wood frame structure clad with wood lap siding and metal roofing, compatible in character with the structures in Drakesbad Guest Ranch. It would be 20 feet by 30 feet and the roof ridge would be approximately 24 feet above grade. The loading dock would be 5 feet by 8 feet and would sit perpendicular to the main structure on the downhill side of the building. The combined footprint of building and loading dock would be 640 square feet.

Utility mains and services would need to be extended to the building sites. Sewer and domestic water service would connect to the existing mains located in the road. Water service for fire protection would require installation of new hydrants. Sprinkler systems, if required, would require booster pumps and additional water tanks. Sizing of all utilities would be based on demand requirements and hydrologic conditions, which would be determined during detailed design of all improvements. This alternative proposes to install a hybrid power system utilizing solar and geothermal sources which would utilize clean energy technology and move away from fossil fuel use.

Small Scale Features

Dumpster

This alternative will be the same as Alternative 2.

Generator

The generator would be relocated from Drakesbad Guest Ranch to the new service area, as in Alternative 2. It would be housed in a new building of the same size and configuration as the existing building. It would be a wood frame structure clad with wood lap siding and metal roofing, compatible in character with the structures in Drakesbad Guest Ranch. It would be 12 feet by 22 feet (264 square feet) and the roof ridge would be approximately 15 feet above grade. The existing propane tanks would be relocated to the new service area, as in Alternative 2, in an area of approximately 50 square feet.

Propane Tanks

This alternative will be the same as Alternative 2.

Site Storage at the 'Bone Yard'

Under this alternative all storage would be relocated to the new service center with the exception of feed for stock, which would be located in a new feed shed adjacent to the new corral.

Bathhouse and Pool

Alternative 3 would include an addition to the existing bathhouse that would increase the number of showers, toilets and massage facilities; provide additional storage; provide accessible facilities for the disabled; and relocate the pool equipment. This component is the same size as Alternative 2, but has a different layout. In addition, it would provide photovoltaic power generation and water heating.

The existing mechanical room, women's restroom (two toilets, one sink), and men's restroom (one toilet, one urinal, one sink) would remain at the rear of the building, as in their existing configuration.

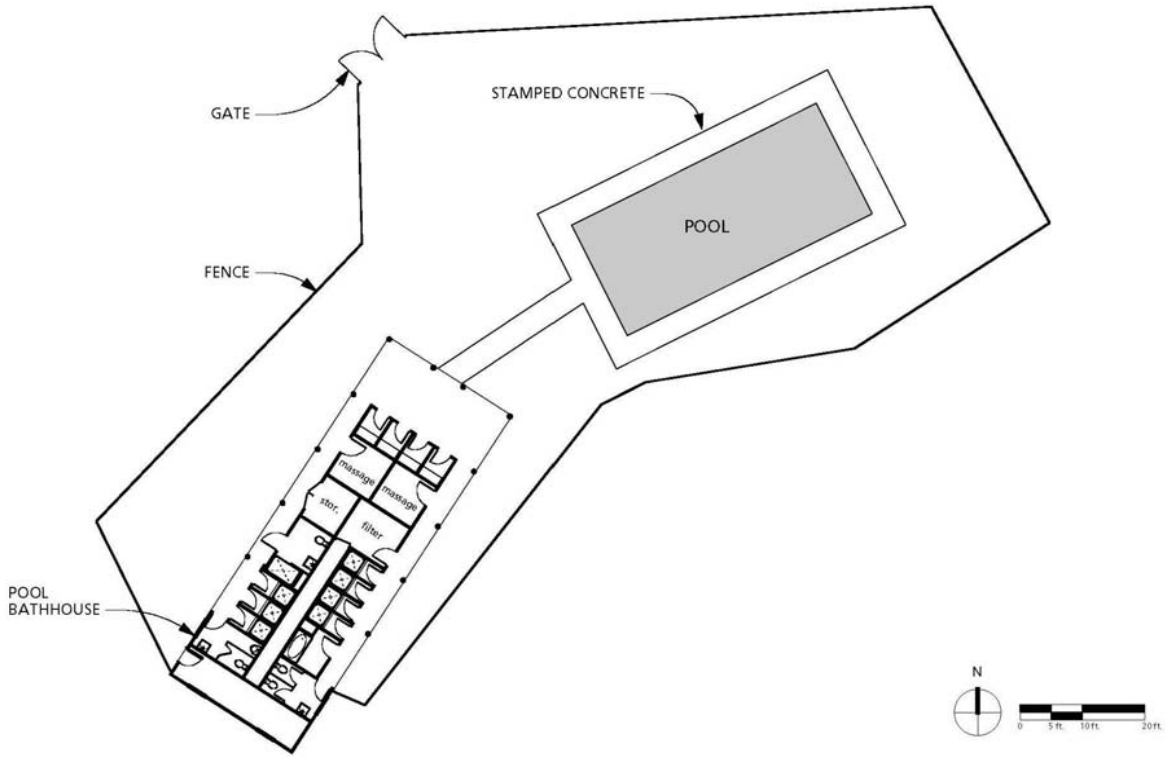
The existing bathhouse would be extended 22 feet-2 inches toward the pool and would include the following: one single-occupancy accessible restroom with shower, one bathtub compartment, seven shower compartments, four changing stalls facing the pool, two massage rooms, one filter room and one storage closet in the middle of the building. This would be an increase of one toilet, one sink, four showers and one massage room; and a decrease of one bath compartment.

As in the existing bathhouse, rooms would be arranged along a plumbing chase and doors open to a porch that wraps three sides of the building. The porch would be 3 feet deep at the north and south (an increase in depth to provide an accessible route of travel) and 10 feet deep facing the pool. The materials in the addition would match the existing building materials. The overall dimensions of the bathhouse would be 23 feet-7 inches by 65 feet-5 inches, an increase of 523 square feet over the existing building (**Figure 2-20**).

The existing filter house would be removed and the equipment would be relocated to a dedicated filter/pump room in the bathhouse. Guests would walk past the filter/pump room to access showers and toilets.

A new rooftop photovoltaic array would provide electricity for running pumps and a water heating system would supplement or replace propane-fired water heaters. Both systems would be located on south side of the bathhouse roof, facing away from Drakesbad Guest Ranch, and would maintain current roof color and design.

Pool coping and decking would be replaced with material more compatible with the historic material, such as stone paving. Sections of eroding stream bank would be stabilized with native riparian plant species in a layered method (bioengineering).



Warner Valley Comprehensive Site Plan

Figure 2-20
Bathhouse and Pool – Alternative 3

Circulation at Drakesbad Guest Ranch

Parking

This alternative will be the same as Alternative 2.

Access Road to Water Tank

Alternative 3 would add additional culverts under the existing road to improve flow of the spring water to Warner Valley. This would be the continuation of an existing improvement program (**Figure 2-21**).

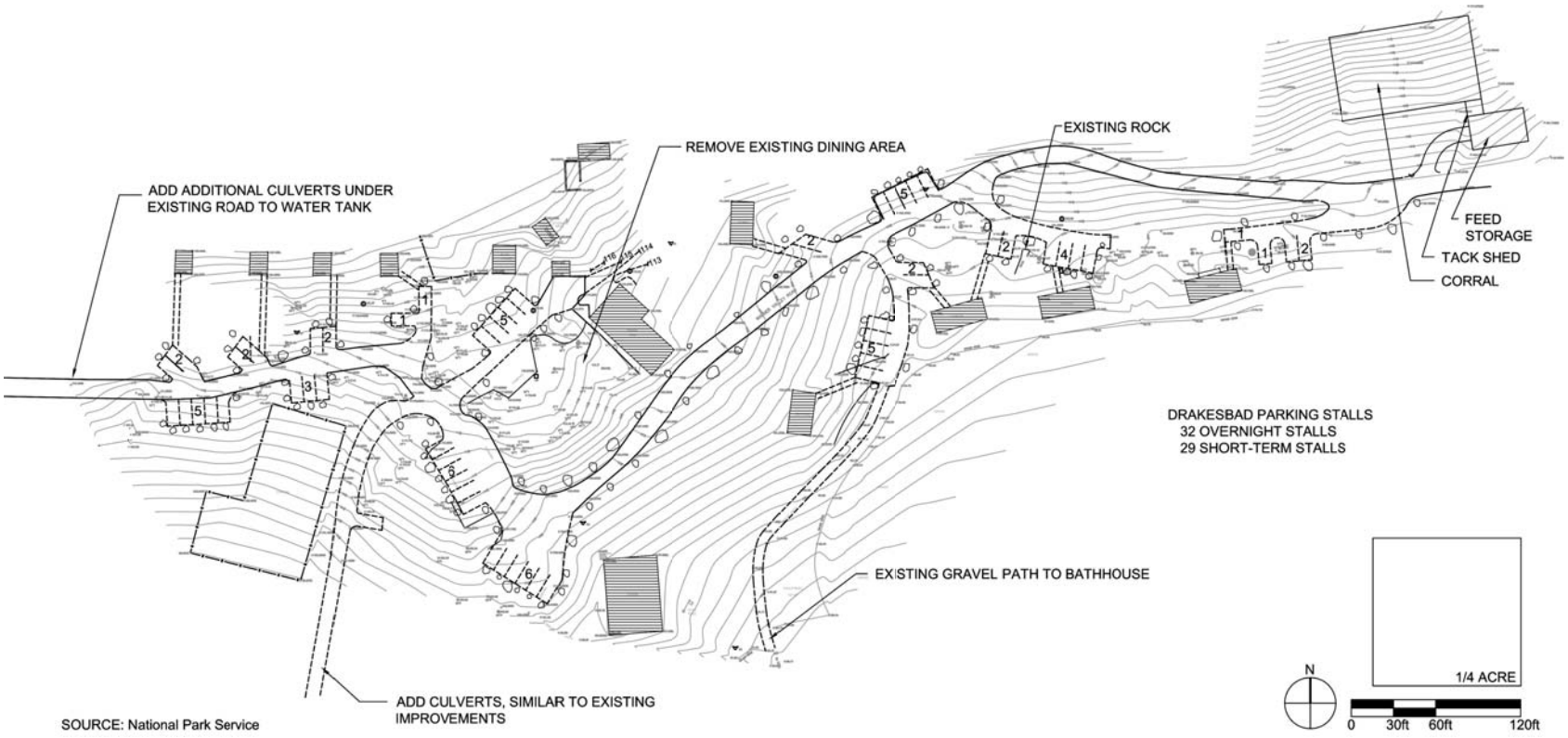
Pedestrian Circulation

Walkways within Drakesbad Guest Ranch

Alternative 3 would minimize the number of paths and define trails with low stones, in keeping with the character of the historic trails.

Access Road / Path to Pool and Bathhouse

Replace existing road with a boardwalk that could be constructed for use by an electric golf cart or smaller service vehicle.



Warner Valley Comprehensive Site Plan ▪

Figure 2-21
Drakesbad Guest Ranch Circulation – Alternative 3

Trail from Corral across Meadow/Fen to the Trail Network

Alternative 3 would continue the improvements made over the last three years with construction of additional culverts.

Land Use

Corral

Alternative 3 would construct a new corral and feed storage in a different location, but still use the existing location for staging of rides. The horses would no longer be housed where they are staged. The lower corral would be maintained as part of the cultural landscape, but not used. The upper corral would be used for staging, and a biofiltration system would be added to mitigate effluent. The existing tack shed would remain and the two barrel fire hydrants and the water line below the corral would be removed (**Figure 2-22**).

The new corral and feed storage building would be located on a site north of Warner Valley Road, just at the entrance to the historic district, across from the existing lift station (**Figure 2-23**). The corral would be approximately 60 feet by 100 feet and would be enclosed with wood fencing similar to the existing corral. The new corral location may require site grading to reduce the side hillslope. The new feed storage building would be of the same design as in Alternative 2. It would be 24 feet by 40 feet and would be a pole barn structure with wood siding and a metal roof, compatible in character with the existing Drakesbad Guest Ranch buildings. The ridge of the roof would be 26 feet in height. A new tack shed would be constructed on the uphill side of the building and would be the same size as the existing tack shed. A short gravel driveway would lead from the road to the feed storage building to provide for delivery of feed.

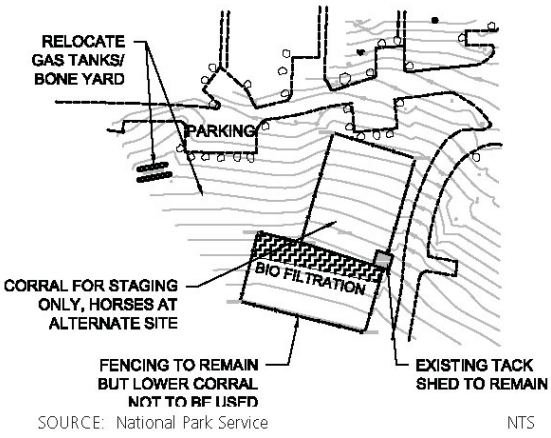


Figure 2-22
Corral – Alternative 3

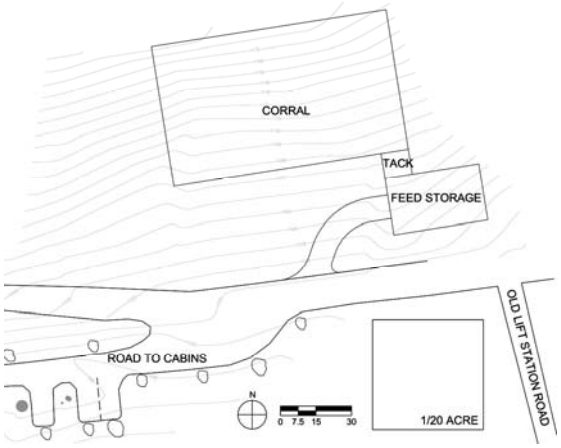


Figure 2-23
Corral Alternate Location – Alternative 3

Volleyball Court

This alternative would remove the volleyball court from its existing site and restore the disturbed area by removing the sand and reseeding the area with native plants. The volleyball court would be relocated to a site near the east side of the swimming pool that is outside of the historic district.

Dining Hall Service Area

Alternative 3 would include re-configuring the area to be more useful and efficient. The area would be lightly re-graded to direct surface flow away from building and catch run-off with drainage system uphill from the dining hall and direct flows to adjacent wetland area. Electrical lines would be buried. The parking near the outdoor dining would remain in the existing location (**Figure 2-24**).

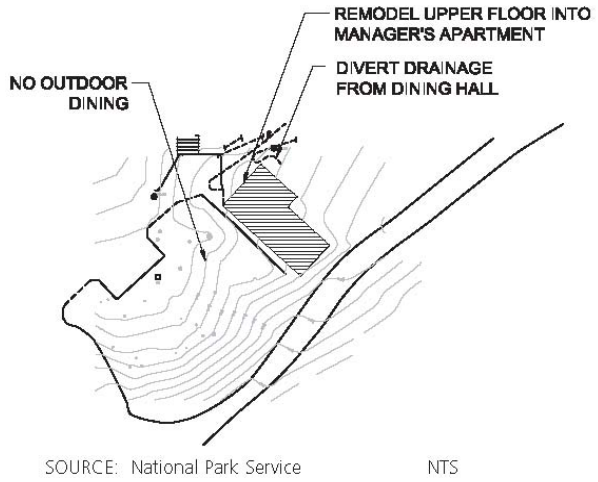


Figure 2-24
Dining Area – Alternative 3

Outdoor Dining Area

Alternative 3 proposes the removal of the outdoor dining area.

Exterior Porch Walls at Cabins # 9, 10, 11, 12

Alternative 3 would include covering the existing exterior porch concrete block walls with a stone veneer.

Drakesbad Meadow

Alternative 3 proposes to increase ongoing measures for improvement such as installing metal check dams at key points in the drainage ditches and installation of culverts under roads and trails to improve sheet flow. In this alternative, the ditches would not be filled in with soil, but rather metal sheets would be put in place to block water flow. The use of seed-free feed for stock would be required, as would enclosed storage for hay and feed and improved clean-up of horse manure to minimize introduction of non-native seed to the fen.

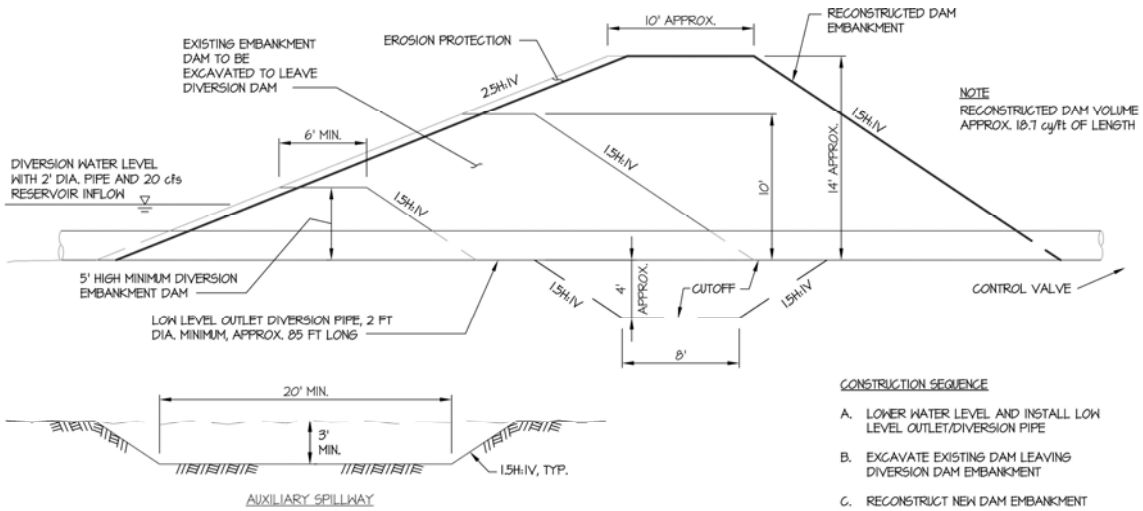
Dream Lake Dam

This alternative would reconstruct the existing Dream Lake Dam to meet Bureau of Reclamation standards. Repair of the existing dam is not feasible due to the moisture content of the embankment soils. This alternative would follow recommendations outlined in the *Title I Schematic Design Report* for Dream Lake Dam, which outlines an approach for construction of an earthen fill embankment. This can be constructed either after partial excavation of the existing dam structure, utilizing that portion of the base for the existing structure that can safely remain, or the excavation and reconstruction of the entire existing dam structure (Kennedy/Jenks, 2007). The

dam reconstruction project would require the use of tools, machinery and heavy equipment at the project site. The equipment would need to be either airlifted to the site or brought in over temporary roads through Drakesbad Meadow and across Hot Springs Creek. An additional option would be to bring heavy equipment through the meadow over snow, before complete snowmelt and ground thaw.

Dream Lake Dam

Prior to construction, approximately 32 lodgepole pine and alder trees ranging in size from 2 inches to 18-inches dbh would need to be removed from the dam embankment and its margins, and the dam would need to be grubbed. No specimen trees or snag trees would be removed. The lake would be de-watered by implementing a controlled breech in the late fall or early winter prior to construction. The water would be lowered by notching the dam, one to two feet at a time, using small equipment. The lake bottom would be allowed to sit over the winter. After dewatering, a large portion of the existing dam would be removed, leaving a low diversion embankment that would aid in diversion during construction. The new dam would be constructed over the diversion embankment, using new, suitable materials (**Figure 2-25**).



Warner Valley Comprehensive Site Plan ▪

Figure 2-25
Dream Lake Dam – Alternate 3

(This assumes that the foundation is suitable to remain.) The new dam would be higher than the existing dam in order to provide sufficient freeboard and would include a new spillway, approximately 20-feet wide and of sufficient capacity to function without beaver interference. The diversion or low level outlet would be outfitted with a trash rack, stilling basin, sand filter, and a bullhead gate and valve box. An energy dissipater would be installed downstream. Suitable soil materials for reconstructing the dam embankment would be imported to the park. In addition, suitable rock materials would be imported to the dam site for the rip-rap that would be needed on the upstream dam face, as well as for the emergency spillway channel. Existing embankment materials could be used for top dressing over the dam core.

2.2 Environmentally Preferred Alternative

In accordance with Director's Order # 12, the NPS is required to identify the "environmentally preferred alternative" in all environmental documents, including environmental impact statements. Identifying the environmentally preferred alternative is not the same as selecting a "preferred alternative" for implementation. The NPS is not required to select the environmentally preferred alternative as the final preferred course of action. The preferred course of action described in this FEIS is Alternative 2 as detailed above.

An environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969, which is guided by the Council on Environmental Quality (CEQ). The CEQ provides direction that "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in Section 101 of the National Environmental Policy Act," which considers:

- Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
- Assuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- Preserving important historic, cultural and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
- Achieving a balance between visitor and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources (NEPA, Section 101).

It is anticipated that the No Action Alternative, Alternative 1, would not have considerable environmental benefits compared to the other action alternatives. In fact, the Plan has been developed to address a number of issues of natural resource degradation and visitor and staff

safety. As the No Action Alternative would not address these issues, it is not the environmentally preferred alternative. Under existing conditions there are many instances of current roads and parking areas associated with erosion and encroachment into natural areas. For instance, the existing day use parking is located in a wetland area and because it is insufficient in size to accommodate parking for the day users, it imposes on wetland resources.

With regards to the natural resources, Drakesbad Meadow is affected under existing conditions because effluent from the corral area flows into the meadow. In addition, seed from hay allows non-native grasses to spread into the meadow and wildlife feed on the hay. The introduction of non-native vegetation species and a reduction in water flows to the meadow has degraded this major natural and cultural resource. These factors have also led to both the proliferation of pocket gophers and their destructive tunnels, and the reduction of native wetland species that require water flow.

Under the No Action Alternative, or existing conditions, Dream Lake Dam has significantly altered local hydrology on the south slopes of Warner Valley, associated with a reduction in riparian habitat. The overall lack of maintenance at the dam and beaver activity has left the dam in a weakened state with a risk of failure

Under the No Action Alternative, or existing conditions, visitor and staff safety may be compromised by several factors. At the entrance to Warner Valley, the fee station is located on a blind curve, so any cars stopped in the road cannot be seen until the last moment by traffic coming into the Valley. Safety issues also exist where campsites are in close proximity to the creek and the road. In addition, the current concessioner housing is not large enough to house the staff members and is of substandard construction. Staff are housed in trailers. These trailers and the bone yard have a visual impact on the cultural landscape and detracts from the visitor experience.

Both the action alternatives (Alternative 2 and Alternative 3) offer benefits in the areas of conservation, restoration, and interpretation and therefore, these alternatives are consistent with fulfilling the criteria listed under Section 101 of NEPA. Selecting the environmentally preferred alternative need not be the same as “preferred alternative” for implementation. However, based on the analysis in this FEIS, Alternative 2, as well as being the preferred alternative is also in this case the environmentally preferred alternative. This determination is made due to improvements and upgrades that would resolve the natural resource and safety impacts discussed above. Under Alternative 2, the removal of the Dream Lake Dam would ensure that the historic stream channels that currently feed the lake would be restored. The goal of the Plan is that this action will result in a significant increase in riparian and wetland habitat in that area. Restoring this natural riparian system will provide the most sustainable natural environment both for local species but also for succeeding generations of park visitors.

Alternative 3 addresses many of the natural resource and safety issues found under existing conditions with some alteration in configurations and capacity as described in this Chapter. However, Alternative 3 does not include removal of Dream Lake but instead proposes reconstruction of the existing Dream Lake Dam through construction of an engineered earthen fill

embankment either after partial excavation of the existing dam structure, utilizing that portion of the base for the existing structure that can safely remain, or the excavation and reconstruction of the entire existing dam structure. The dam reconstruction project would require the use of tools, machinery and heavy equipment at the project site. The equipment would need to be either airlifted to the site or brought in over temporary roads through Drakesbad Meadow and across Hot Springs Creek. The extent of temporary infrastructure construction would be greater under Alternative 3 than Alternative 2, due to the need to import soil and rock fill materials from suitable sites outside of the park. Construction impacts from this project, and the fact that the environmental benefits from the removal of Dream Lake would not be realized under Alternative 3 led to the conclusion that Alternative 3 is not the environmentally preferred alternative.

2.3 Actions Considered But Dismissed

Under NEPA, an alternative may be eliminated from detailed study for one or more of the following reasons:

- inability to meet project objectives or resolve the need for the project;
- duplication of other, less environmentally damaging alternatives;
- conflicts with an up-to-date valid plan, statement of purpose and significance, or other policy and therefore would require a major change in that plan or policy to implement;
- environmental impacts are too great; and
- technical or economic infeasibility.

Those alternative actions considered but eliminated from detailed study are described below.

Warner Valley Road Improvements

This alternative proposed construction of a new road cut to accommodate one-way traffic inbound, and use of the existing alignment for outbound traffic. The new road would raise the grade over the existing culvert across the stream channel requiring lengthening of the culvert and the construction of a rock outfall structure in keeping with historic landscape. This road would eliminate the blind curve but would require extensive earthwork and the removal of trees. This alternative was dismissed due to the potential environmental damage and conflicts with protecting a cultural resource.

Drakesbad Guest Ranch

Concessioner Housing and Service Facilities

This alternative would have placed staff housing along the north side of Warner Valley Road, across from the eastern most duplex. This site was determined to be undesirable due to its proximity to the Warner Valley Road and its being within the historic district of Drakesbad Guest Ranch.

Small Scale Features

Dumpster

This alternative would have relocated the dumpster to the existing 'bone yard' and provided screening. It would have restored the current location of approximately 100 square feet by removing the existing gravel and by reseeding with native propagated seed. In the discussed and dismissed section the dumpster, propane tanks, and 'bone yard' alternatives were in conflict with each other.

Propane Tanks

This alternative would have screened the tanks with fencing and native vegetation and restored the current location of approximately 50 square feet by removing existing gravel and concrete footing and reseeding with native propagated seed. Removing the propane tanks and replacing them with alternative fuel sources, such as solar power was considered. It was determined unfeasible given the amount of photovoltaic panels needed to offset the amount of energy lost, so this alternative was dismissed.

Site Storage at the 'Bone Yard'

This alternative would have screened the storage area with fencing and native vegetation and provided an enclosed container to minimize intrusion by wildlife for stock feed. An enclosed container in this location would not be large enough to store all the feed for 20-24 horses. It would require trucking feed from the feed storage building to this site on a frequent basis, therefore making it an operational problem.

Circulation at Drakesbad Guest Ranch

Access Road to Water Tank

The removal and relocation of the current access road to the water tank was discussed as an alternative. It was determined that relocation of the water tank would require a pressurized system, requiring back-up power to maintain flows for fire protection needs. This alternative would require much more infrastructure than a gravity-fed system, and was therefore dismissed. Relocating the water tank, intake and access road, would also have a negative impact on any new location.

Pedestrian Circulation

Trail from Corral across Meadow/Fen to Trail Network

Narrowing the trail from the corral across the meadow/fen to the trail network was discussed and dismissed. It was determined to not meet the usage demands and environmental goals.

Path to Pool and Bathhouse

Placing culverts under the existing path was considered but dismissed. The existing path is below grade, so culverts would be below grade as well and therefore would not function.

Land Use

Corral

Relocating the corral to the new service area was discussed. It was dismissed due to the negative effects on the cultural landscape from losing the historical use at Drakesbad Guest Ranch. Operational impacts on the new site and difficulty of staging rides were also factors in dismissing this alternative.

Other

The following are issues which were raised during public scoping and are beyond the scope of this plan: hydrothermal activity; chlorinated water from the pool entering the creek; setting aside rooms at Drakesbad Guest Ranch for lower income people; changing demographics in California; campsites accommodating small recreational vehicles and horse trailers; less stringent controls for designated parking areas; huts for winter ski-in use; and emergency egress routes out of Drakesbad Guest Ranch.

References

Graham, Wayne J., 2000. *Downstream Hazard Classification Dream Lake Dam, National Park Service Lassen Volcanic National Park California*, U.S. Department of the Interior Bureau of Reclamation, November.

Kennedy/Jenks Consultants, 2007. *Title I Schematic Design Report, Dream Lake Dam, Lassen Volcanic National Park*. Prepared for National Park Service, May.

National Park Service (NPS), 2005. *Cultural Landscape Report for Drakesbad Guest Ranch*.

National Park Service (NPS), 2008. *Comprehensive Site Plan for the Restoration and Preservation of Warner Valley*, July.

National Park Service (NPS), 2009. Lassen Volcanic National Park Concession Contract CC-LAVO001-09.

Patterson, L. and D.J. Cooper, 2005. *Hydrologic Characterization and Restoration of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California* [Masters Thesis].

Sifford, Roy D., 1994. *Sixty Years of Siffords at Drakesbad*. Susanville, California: Lahontan Images.

CHAPTER III
Affected Environment

3.1 Geologic Resources and Hazards

Introduction

A primary objective of the Warner Valley Comprehensive Site Plan (Plan) is to protect the unique natural resources found in the Warner Valley area, which includes preserving the natural geologic environment, volcanic features, and soil resources. This section outlines the geologic features of the Warner Valley area that would likely be affected by the efforts under the Plan to protect natural processes and cultural and wilderness resources. Sources accessed for this section include the *Warner Valley Comprehensive Restoration and Preservation Site Plan (2008), and the General Management Plan and Final Environmental Impact Statement, Lassen Volcanic National Park (2002).*

Local Geology

Warner Valley marks the southern edge of the Lassen plateau. The Warner Valley is the eroded center of the Mt. Ditmar volcano and consists of volcanic rocks, glacial landforms, and recent volcanic flows (NPS, 2008). The center of the Warner Valley features a large meadow that is one of the largest known fens in the western United States. The Drakesbad Meadow area has a number of faults, including a normal fault[1] that extends 2.4 miles southeast from a hot spring at the southern edge of Drakesbad Meadow to the Boiling Springs Lake geothermal area. An additional normal fault originates at Boiling Springs Lake and extends to the Devils Kitchen geothermal area, 4.8 miles west of Drakesbad Meadow (Patterson, 2005). These normal faults are not considered active or capable of generating a large earthquake.

Soils

Soils within Lassen Volcanic National Park are rocky, shallow, acidic, and originate almost exclusively from volcanic parent rock (NPS, 2002). Soil depths vary from several feet in the valleys to thin veneer at higher elevations. In the Warner Valley area, the middle Drakesbad Meadow consists of a complex relationship between organic-rich soils on an alluvial fan and mineral soils on an active floodplain where flood scour and fill processes dominate (AGE, 2004). Organic-rich soils are located across the northern half of the middle Drakesbad Meadow. The organic soils are predominately peat loams to mucky loams.

[1] A Normal fault is a fault with vertical movement and an inclined fault plane, where the block above the fault has moved down relative to the footwall.

Soil resources can be adversely affected by compaction by foot, livestock, or vehicular traffic. Compaction alters the structure of the soil, reduces its infiltration capacity, and results in erosion by accelerating runoff. Soil loss occurs by wind and water in soils that are exposed and not vegetated. Soil loss from slopes can be considerable when the snowpack melts after heavy rain or snow events. Degradation of soil resources through compaction and loss is a common geologic impact, especially in areas of heavy human use.

Seismicity

While there are geologic faults located in and around Warner Valley, these faults are not considered active. Ground motion hazard data provided by the U.S. Geologic Survey (USGS) indicates that the peak ground acceleration (PGA) in Warner Valley with a 10% probability of being exceeded in 50 years (1in 475 chance of occurring in one year) is 0.22 g[2]. This information suggests that the site is not likely to experience severe ground motions such as those that are expected to occur in high risk seismic areas such as the San Francisco Bay Area or the Los Angeles region. For comparison, those regions are located in areas of high seismic risk have PGAs that typically range from 0.4 to 0.6 g, while the Drakesbad Meadow site has an expected PGA of 0.22 g (WJE, 2003).

Earthquakes generally precede a volcanic eruption and for this reason they are monitored by the United States Geologic Survey's Volcanic Hazard Program. Nine seismometers located in and near the park provide a continuous record of seismic activity. This activity is monitored 24-hours a day by scientists from the U.S. Geological Survey's Earthquake Laboratory in Menlo Park, California. Primary purposes of this monitoring are to 1) provide early warning of a forthcoming volcanic eruption and 2) learn more about earthquake and volcanic phenomena based on "background" levels of seismicity. Evaluation of data from this network by U.S. Geological Survey scientists enables park staff to prepare an effective warning and evacuation plan in the event of renewed volcanic activity in the Lassen area (NPS, 1999).

Geologic/Seismic Hazard

Given that there is a low potential for a large earthquake in the project area and considering the soils types and presence of volcanic bedrock, it follows that the potential for seismically-induced ground failure is low. Furthermore, a low potential exists for non-seismic induced ground failure such as settlement, shallow subsidence, or gradual compaction of fine grain material to occur in the Warner Valley. The most susceptible area for gradual ground settlement or subsidence to occur is in areas of the meadow underlain by peat. Subsidence can also occur in localized areas where the reduction of water flow has depleted the peat layers through oxidation. Rockfall risk is present along the base of slopes, especially in areas of steep slopes with loose rocks. Although future volcanic eruptions in the vicinity of Lassen Volcanic National Park are likely, it is not possible at this time to predict where or when they will occur. The most likely locations are near Lassen Peak, Chaos Crags, Tumble Buttes or Bogard Buttes (NPS, 1999).

[2] Ground acceleration is expressed as a percent of acceleration due to gravity. g (gravity) = 980 centimeters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

References

Advanced Geological Exploration, Inc, (AGE), 2004. *Phase II Soils and Tephra Sampling, Geologic Research Project, Drakesbad Meadow, Lassen Volcanic National Park.* Prepared for the National Park Service, Lassen Volcanic National Park, Mineral California, 24 March.

National Park Service (NPS), 1999. Lassen Volcanic National Park, *Natural and Cultural Resource Management Plan, Volumes I and II,* December.

National Park Service (NPS), 2002. *General Management Plan and Final Environmental Impact Statement, Lassen Volcanic National Park,* February.

National Park Service (NPS), 2008. *Warner Valley Comprehensive Restoration and Preservation Site Plan*, July.

Patterson, Lindsey S., 2005. *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California,* Graduate Thesis.

Wiss, Janney, Elstner, Associates (WJE), 2003. *Drakesbad Guest House, Seismic/Structural Evaluation, Lassen National Park, California.* Prepared for the National Park Service, Denver Colorado, 19 February.

3.2 Hydrology and Water Quality

Introduction

One objective of the Warner Valley Comprehensive Site Plan (Plan) is to protect the unique natural resources found in the Warner Valley area, which includes preserving natural hydrology and protection of water quality. Hydrologic features include creeks, Drakesbad Meadow, sensitive wetlands, and the geothermal features located in the surrounding areas. This section outlines the hydrologic features of the Warner Valley area that would likely be affected by the efforts under the Plan to protect natural processes and cultural and wilderness resources. This section also presents available water quality information as a baseline to evaluate actions considered under the project alternatives. Sources accessed for this section include the *Warner Valley Comprehensive Restoration and Preservation Site Plan (2008)*, the *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California (2005), and the General Management Plan and Final Environmental Impact Statement, Lassen Volcanic National Park (2002).*

Local Hydrology

Lassen Volcanic National Park contains over 200 lakes and ponds, 15 perennial streams, and portions of four drainage basins that flow to the Sacramento River (NPS, 2002). In Warner Valley, hydrology is controlled primarily by Hot Springs Creek, which flows along the southern margin of Drakesbad Meadow to eventually drain into the Upper North Fork of the Feather River. An unnamed tributary receives spring flow from the north side of Drakesbad Meadow then flows south to join Hot Springs Creek. The local hydrologic regime is snowmelt driven with precipitation beginning in October and averaging approximately 31 inches per year, 90 percent of which falls as snow (Patterson, 2005). A 100-year floodplain map has not been developed for Warner Valley within park boundaries. The only developed areas affected by flooding in the past have been the pool and bath house at Drakesbad Guest Ranch where only minor stream bank erosion and some overtopping occurred. However, the Warner Valley area is susceptible to localized flooding caused by rain-on-snow events, as occurred in 1938 and 1952 (Johnson, 2005). Precipitation averages about one half an inch per month during the June to August growing season.

Drakesbad Meadow and Fen

Drakesbad Meadow is the largest non-forested feature in Warner Valley and the largest meadow in the park (NPS, 2008). Contained within Drakesbad Meadow are areas of peat soils and saturated conditions characteristic of a wetland feature known as a fen. The fen at Drakesbad Meadow is about 4,000 years old.

Volcanic rocks north of Drakesbad Meadow make up a large groundwater aquifer that provides a consistent supply of water to the fen. Groundwater is discharged from the aquifer through springs in the bedrock slopes about 200 feet above the floor of Drakesbad Meadow and enters the meadow predominantly via surface flow paths with minor contributions from shallow

groundwater flow (Patterson, 2005). More than 99 percent of the water supply to Drakesbad Meadow originates as hillslope spring discharge during the summer; in the summer of 2002, the water table in many areas of Drakesbad Meadow remained at 2 inches from the soil surface despite almost no precipitation (Patterson, 2005).

The hydrologic regime of the fen and Drakesbad Meadow is considered a groundwater recharge area, or flow-through system, because the inability of the underlying mineral layers to transmit water vertically downward promotes horizontal flow south toward Hot Springs Creek. The lateral flow helps to maintain near surface water tables (Patterson, 2005).

Because water is recharged to the fen and Drakesbad Meadow predominately by surface flow from the upland springs, alterations to the surface water flow paths can have deleterious effects (Patterson, 2005). Records indicate that the meadow was modified in the early 1900s with hand constructed drainage ditches to drain and irrigate Drakesbad Meadow for livestock grazing. More recently roads, infrastructure, trails and a trailhead day use parking area have infringed upon the wetland area, adversely affecting the natural hydrologic regime and processes.

Dream Lake Dam

Dream Lake is a man-made feature, which is used by Drakesbad Guest Ranch guests for fishing, bird watching and canoeing. The dam at Dream Lake retains about 2.7 surface acres of water to a depth of about 5 feet and releases overflow through a spillway that feeds Hot Springs Creek downstream of the dam. There is no operational low-level outlet pipe. The dam was originally constructed in 1932 and was reconstructed after high winter runoff damaged the structure in 1938 and 1952. The dam retains water from four small, spring-fed tributaries which originally flowed into Hot Springs Creek from the uplands to the south. Beavers have constructed dams at the spillway, impeding spillway flow and causing overtopping at low points in the crest of the dam (NPS, 2008). The overall lack of maintenance at the dam and beaver activity has left the dam in a weakened state with a risk of failure (NPS, 2008). A Condition Survey Report completed in November 2000 to evaluate the downstream hazard classification of Dream Lake Dam reported that, although the dam had numerous deficiencies, the dam was a low-hazard potential structure due to its small size. No loss of life is expected to occur downstream if the dam were to fail (Graham, 2000).

Water Quality

Water quality is generally considered to be excellent because Lassen Volcanic National Park is located at high elevations and there is no development upstream to impact water within the park (NPS, 1999). Surface water from Drakesbad Springs and Warner Valley Springs is treated to provide drinking water for park visitors and staff. Drinking water is monitored daily by the National Park Service to assure a safe supply for human use. The Park also conducts periodic water sampling where sewage systems or human use could contaminate or otherwise alter the water quality.

Broad based chemical analysis and testing for herbicides and pesticides has been conducted in Forest Creek, the North Fork of Hat Creek, Lost Creek, Manzanita Creek and Flatiron Ridge Spring watersheds over the last twelve years. No pesticides have ever been detected in any of the park's watersheds (NPS, 1999). Water sampling for metals and general chemistry was conducted in 1995 at the "Northwest Spring" in Drakesbad Meadow. Water samples contained low to non-detectable metals concentrations and were indicative of an unimpacted groundwater source. All of the park's drinking water (before treatment) is neutral in reaction with a pH of about 7 with the exception of Forest Creek which is very acidic (pH of about 4.0) and also has high levels of aluminum and manganese. Results of all water testing have fallen within the State of California maximum contaminated levels for drinking water.

San Jose State University completed sanitary surveys on five park watersheds in 1997. The surveys recorded temperature, pH, turbidity, dissolved oxygen, and flow rates and sampled for the presence of coliform, giardia, and cryptosporidium. The park plans to complete sanitary surveys every five years to evaluate the impact of visitation on natural water quality and to access water quality at water intakes at each watershed. The proposed monitoring program will evaluate water quality changes over time as they relate to changes in activities and management practices throughout the watersheds (NPS, 2002).

References

Graham, Wayne J., 2000. *Downstream Hazard Classification Dream Lake Dam, National Park Service Lassen Volcanic National Park California*, U.S. Department of the Interior Bureau of Reclamation, November.

Johnson, Louise, 2005. Response to Data Needs Request to Environmental Science Associates, Memorandum, L76 (LAVO), September 6.

National Park Service (NPS), 1999. Lassen Volcanic National Park, Natural and Cultural Resource Management Plan, Volumes I and II, December.

National Park Service (NPS), 2002. *General Management Plan and Final Environmental Impact Statement, Lassen Volcanic National Park*, February.

National Park Service (NPS), 2008. *Warner Valley Comprehensive Restoration and Preservation Site Plan*, July.

Patterson, L. and D.J. Cooper, 2005. *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California*, Graduate Thesis.

3.3 Vegetation and Wildlife, Wetlands and Special-status Species

Introduction

Lassen Volcanic National Park is located near the junction of the Cascade and Sierra Nevada mountain ranges, and between the California and Great basin floristic provinces. The park is dominated by four major plant communities: yellow pine forest, red fir forest, subalpine forest, and alpine fell fields. Its geographic location, combined with a diversity of geologic substrates, results in a diverse flora as well as a correspondingly diverse wildlife assemblage.

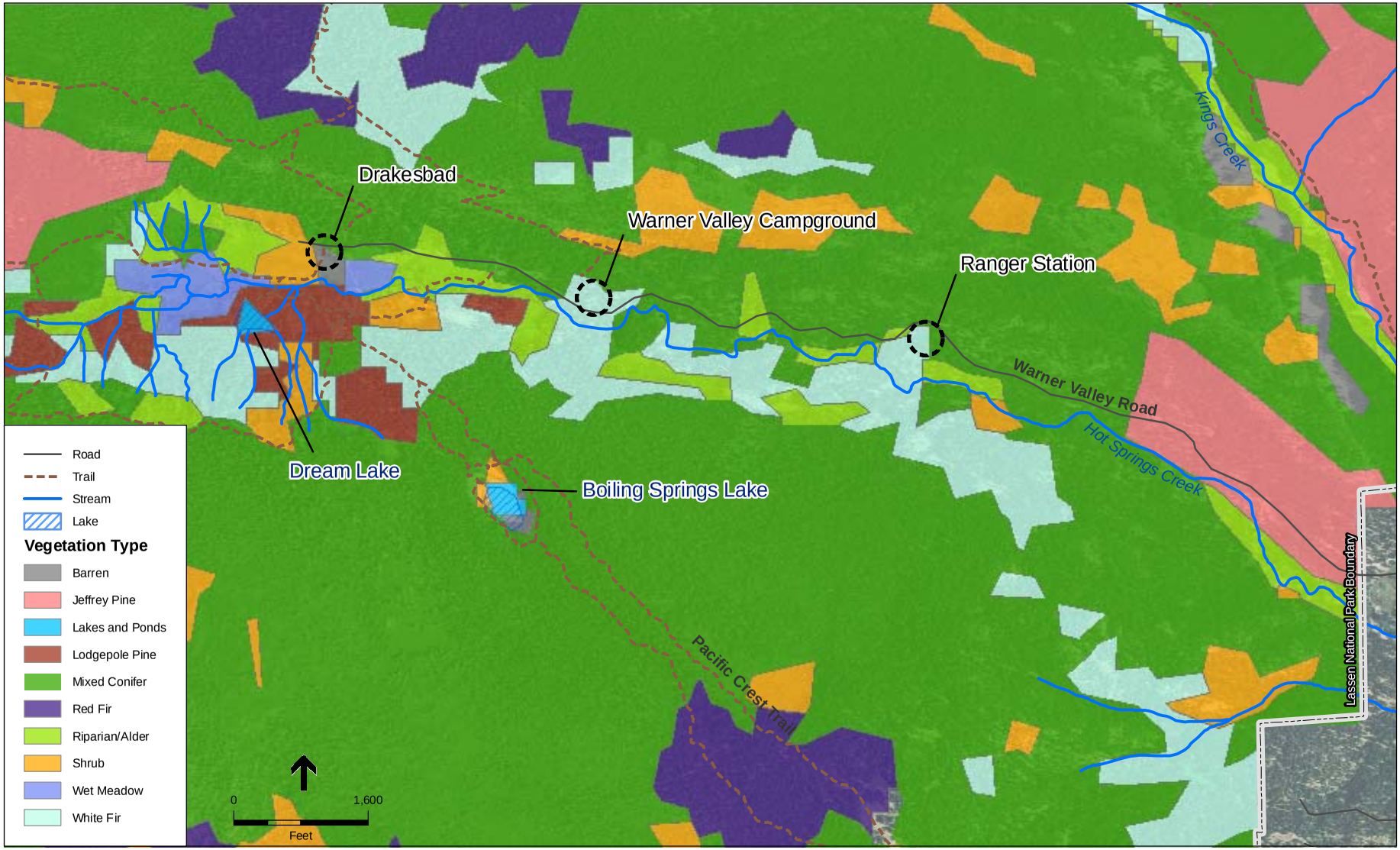
Plant communities within the Park have been altered significantly by human activities, including livestock grazing, recreational use, and fire suppression. As noted in the Park's General Management Plan (NPS, 2002), in heavily impacted parts of the park, natural vegetation cannot re-establish on its own and restoration and enhancement programs must be implemented to restore these damaged areas.

Information presented below specific to the biological resources of Warner Valley is drawn from descriptions and data provided by the National Park Service (NPS), other NPS planning documents for Lassen Volcanic National Park and the Warner Valley area, and from reconnaissance level surveys of the project area conducted by ESA in 2005.

Vegetation

Vegetation of the Warner Valley area is adequately described in the Comprehensive Site Plan Final Report (NPS, 2008a) and will only be summarized here, with an emphasis on existing conditions within the project area. See also **Figure 3.3-1**, Warner Valley vegetation.

Vegetation along the Warner Valley Road from the ranger station to Drakesbad Guest Ranch, in and around the existing campgounds and Drakesbad Guest Ranch, and along the trail to and surrounding Dream Lake is dominated by a variety of upland conifer forest types. Mixed conifer (or yellow pine forest (NPS, 2008a) is the most common, and is composed of white fir, Jeffrey pine, lodgepole pine, incense cedar, sugar pine, occasional red fir, and western white pine. Long-term fire suppression has led to substantial changes from the historical condition in forest composition and structure throughout the Park and within the project area. Forest stands have a higher tree density, show increases in shade tolerant and fire intolerant species such as white fir, exhibit increased amounts of dead wood on the ground, and have fewer openings in the forest canopy. These changes have resulted in decreases in forest understory cover and diversity. Recreational use in and around the campgrounds and Drakesbad Guest Ranch and along trails have compounded the problem in heavily used areas. Aspen groves in Warner Valley were remapped in 2005, but do not occur within the project area. Riparian and wetland vegetation are discussed in the section below.



SOURCE: National Park Service, 2005; National Wetlands Inventory, 2006

Warner Valley Restoration and Preservation

Figure 3.3-1

Warner Valley Vegetation

Wetlands

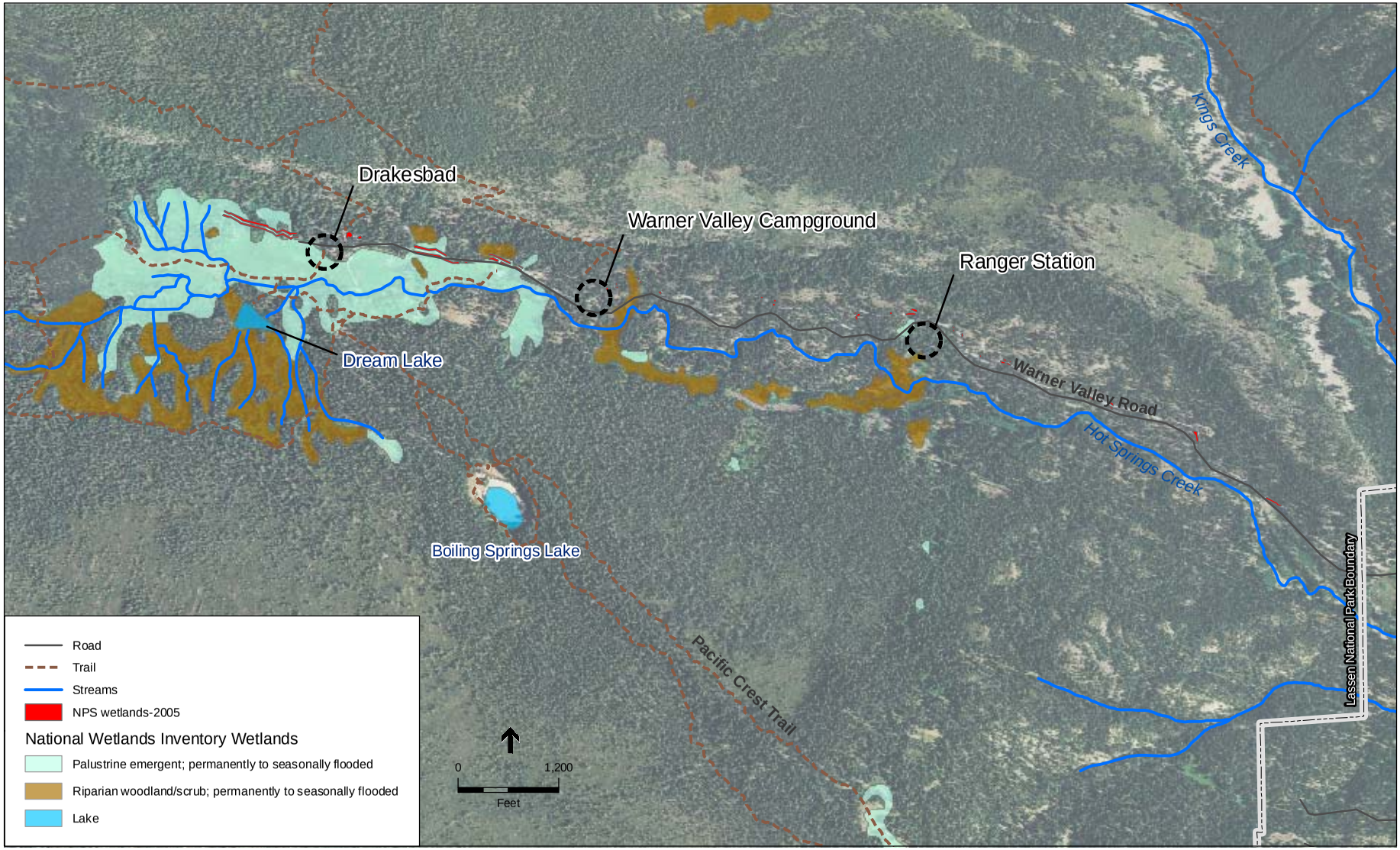
Wet Meadow, Riparian and other Wetland Areas

Wetlands, which support a high diversity of plant and wildlife species, are a critical resource in Lassen Volcanic National Park. National Wetlands Inventory (NWI) maps were produced in 1989 for the Park and surrounding National Forest lands and these maps were ground-truthed for accuracy within the project area in 2005 (Johnson, 2005). Based on several rough estimates for vegetation types, wet meadow and riparian/alder zones total over 2,000 acres in the park. Of this acreage, several wet meadow wetland complexes are significant in size, including Drakesbad Meadow, Kings Creek Meadow and Dersch Meadows. There are hundreds of smaller wetlands throughout the park associated with lakes, ponds, and streams.

Wet meadow, riparian and other wetland areas make up at least 15 percent of Warner Valley habitat. As vegetation types these areas are well described in the Comprehensive Site Plan (NPS, 2008a). See **Figure 3.3-2**, Warner Valley Streams and Wetlands.

Portions of Drakesbad Meadow in Warner Valley were identified as a fen (Patterson, 2005). At approximately 35 acres, this spring-fed complex is the largest wetland in the Park. Fens occur throughout the Rocky Mountains but few occur in the Cascade or Sierra Nevada mountain ranges. The entire Drakesbad Meadow complex is considered a palustrine (freshwater not associated with lakes, but rather with persistent groundwater), permanent to persistent emergent wetland (dominated by an array of grass-like plants and true grasses). Palustrine wetlands include all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and some saltwater wetlands. Palustrine wetlands include those areas called marshes, bogs, fens, and prairies as well as shallow permanent or intermittent ponds. Palustrine wetlands are further classified as forested, emergent wetland persistent, or scrub-shrub wetlands (Cowardin et al. 1979). Drakesbad Meadow, surrounding meadows along Hot Springs Creek, and the hillslopes above the valley floor comprise a mosaic of sedge-dominated wet meadows and scrub-shrub wetlands. Included are the seeps and associated wetlands along the south facing slopes above Warner Valley Road and along the water tank access road to the west of Drakesbad Guest Ranch. The scrub-shrub palustrine emergent wetlands are dominated by alder and willow, with an understory of grasses, sedges and rushes. Scrub-shrub wetlands generally contain an overstory of trees (approximately 20%) and an understory of shrubs (60%) with the trees usually less than 20 feet tall (Cowardin et al. 1979). The 1989 NWI mapping classified most of the palustrine meadows and scrub-shrub wetlands in Warner Valley as “seasonally flooded”, however, according to NPS staff, these are more accurately described as “permanently/persistently flooded” given the extensive spring systems feeding the hillslopes and valley floor (Johnson, 2005).

Meadow and fen hydrology was altered by the construction of ditches to de-water portions of the meadow in the early 1900s: construction of several roads and trails crossing the meadow (built on fill), and construction of the pool and bath house. The water tank access road was also built in such a way as to interrupt flow from a number of springs and seeps that constitute the primary hydrologic input to the fen. A recent study (Patterson, 2005) illustrated the effects hydrologic modifications were having on meadow vegetation and hydrology and made suggestions as to how



SOURCE: National Park Service, 2005; U.S. Fish and Wildlife Service, 2008

Warner Valley Restoration and Preservation

Figure 3.3-2

Warner Valley Streams and Wetlands

to restore fen hydrology. Culverts have since been installed along the water tank road and further restoration efforts are proposed as a part of the Comprehensive Site Plan.

Hot Springs Creek is the largest creek in the valley, running through Drakesbad Meadow and then paralleling Warner Valley Road through coniferous forest. Hot Springs Creek is considered an upper perennial riverine wetland, with mostly unconsolidated shore, some bedrock substrate, and seasonally flooded margins. There are numerous pockets of palustrine scrub-shrub seasonally flooded wetlands along the creek as it flows through Warner Valley. According to the Warner Valley Road Culvert Inventory (Appendix A), there are 21 smaller, intermittent tributaries to Hot Springs Creek that are culverted under Warner Valley Road from the park entrance to Drakesbad Guest Ranch. Some of these streams support pockets of emergent and/or scrub-shrub palustrine wetlands and others do not. Many of the culverts along Warner Valley Road are undersized and this has resulted in erosion of stream bed and banks downstream and/or upstream of the culverts.

Dream Lake, is a permanently flooded palustrine wetland and is a man-made impoundment fed by several drainages that carry flow from a series of seeps, as well as by rainfall and snowmelt. There are small emergent perennially to seasonally flooded emergent wetland areas located intermittently around the lake margins. Dream Lake Dam has failed twice in the past and is determined to be at risk of future failure, although the consequences are not expected to be catastrophic (Young, 2000; Zeigenbein and Smillie, 2002). There are many slumps, and seeps on the dam face and beaver activity blocking the spillway caused water to overtop the dam in 2003. The installation of “beaver deceivers” has since alleviated this problem.

Wildlife

Over 280 native wildlife species have been documented in Lassen Volcanic National Park, including 57 mammal species, 215 bird species, and 15 species of amphibians and reptiles (NPS, 2008b). However, little is known about the abundance and distribution of most species within the Park.

Wildlife inhabiting the Warner Valley was described in the Cultural Landscape Report for Drakesbad Guest Ranch (NPS, 2005) and ongoing songbird monitoring has been conducted annually in Drakesbad Meadow since 1997 (NPS, 2005). In addition, the recently produced *Weed Management Plan and Environmental Assessment* (NPS, 2008b) provides up to date information on biological resources in the Park. Information presented in these documents is summarized below.

Warner Valley is a mosaic of upland forest, wetland, wet meadow, and alder and willow riparian habitats, providing forage and cover for a diversity of wildlife species. Drakesbad Meadow is home to mammals such as the mountain pocket gopher, broad-footed mole, deer mouse, montane vole, and several different species of shrew. Black-tailed deer and coyote forage in the meadow and also use the surrounding forest, which also supports Douglas’ squirrels, golden-mantled ground squirrels, and several different species of chipmunk. Bobcats and mountain lions, although rarely seen, are also likely to be in the Warner Valley area. Black bears are quite common and can be seen in both the meadow and the forest. They have also been known to

frequent Drakesbad Guest Ranch, the Campground and the Ranger Station searching for food. Beavers occur along Hot Springs Creek and in Dream Lake where they have constructed dams. It is unclear whether this species was historically native to the Lassen area and, since they have the capacity to locally alter hydrology and vegetation, NPS commissioned several studies (Fellers, 1981; Beier, 1998) to provide a basis for beaver management within the Park and has since made the decision to manage the beaver as a native species. The pine marten is a large member of the weasel family that frequents the more mature forests around the Warner Valley area.

Many of the birds found in the Warner Valley are neotropical migrants that use the willows and alders along Hot Springs Creek and the edge of Drakesbad Meadow as breeding habitat. Of the 45 species documented in mist-net captures from 1997 to 2004 (NPS, 2005), some of the most common are song sparrow, Wilson's warbler, MacGillivray's warbler, Lincoln's sparrow, warbling vireo, orange crowned warbler, Cassin's finch, and yellow warbler. These surveys have also shown Warner Valley to be an important dispersal area for juvenile orange-crowned warblers and rufous hummingbirds, two bird species in decline, even though these species do not breed there. Common snipe and killdeer have been seen in Drakesbad meadow and spotted sandpipers nest along Hot Springs Creek and can be seen foraging at Dream Lake. Nearby lakes provide habitat for breeding mallards and bufflehead ducks.

Western tanagers, Hammond's flycatcher, dusky flycatcher, olive-sided flycatcher, evening grosbeaks, golden-crowned kinglets, brown creepers, and mountain chickadees, as well as Steller's jays, white-headed woodpeckers, pileated woodpeckers, hairy woodpeckers, downy woodpeckers, and red-breasted sapsuckers can be found in the forests surrounding Drakesbad Meadow. Birds of prey that are known to hunt and nest in the Warner Valley area include red-tailed hawks, northern goshawks, Cooper's hawks, and sharp-shinned hawks. Bald eagle and golden eagle occur only as flythrough species.

Aquatic species have not been well studied in the Warner Valley area. Eastern brook trout are known from Dream Lake and Hot Springs Creek and there has been a single sighting of Pacific lamprey in Hot Springs Creek (NPS WOD).

Special-status Species

There are a number of special-status species with potential to occur in the Warner Valley Comprehensive Site Planning area. Appendix B of this EIS provides comprehensive lists of the special-status species that have been documented from, or have potential to occur in suitable habitat within, the general project area (the Reading Mountain and Mt. Harkness 7.5 Minute USGS topographic quadrangles). These lists were obtained from the California Natural Diversity Database (CDFG, 2008), California Native Plant Society Electronic Inventory (CNPS, 2008), and the U.S. Fish and Wildlife Service (USFWS, 2008). Based on review of the biological literature of the region, previous environmental documents, surveys in the project site vicinity, and an evaluation of the habitat conditions of the proposed project site, many of these species were eliminated from further evaluation because (1) the project site or the immediate area does not provide suitable habitat, or (2) the known range for a particular species is outside of the project site and/or the immediate area.

The special-status species list presented in Table B-1 of the Appendix includes species for which potential habitat (i.e., general habitat types) occurs on or in the vicinity of the project sites. Species for which generally suitable habitat occurs but that were nonetheless determined to have low potential to occur in the project area are also listed in Table B-1. This table also provides the rationale for each potential-to-occur determination. There are 37 species (15 animals and 22 plants) observed, or with a moderate to high potential to occur, in the project area and these are discussed in further detail below.

Federally Listed Species

None.

State Listed Species

Sierra Nevada red fox generally occurs above 5,000 feet in forest and fell fields with wet meadows, but may also visit lower elevation areas in summer. There are currently no known den sites within the Park. Since most sightings have been in developed areas along the main park road within Lassen Volcanic National Park and the species is known to beg at parking areas and campgrounds throughout the Park, there is potential for this species to occur within the project area.

Greater sandhill crane can be found in wetland habitats such as meadows, pastures, grain fields, bogs, fens, marshes and fields. There have been sightings throughout Lassen Volcanic National Park, including Warner Valley, although no reproduction within the Park has been confirmed. A breeding pair is documented from Willow Lake southwest of the project area.

Little willow flycatcher nest in dense willow thickets in montane meadows and along streams. Records indicate this species historically bred in Sulphur Creek Meadows and around Snag Lake in Lassen Volcanic National Park. This species is currently found in the Warner Valley area, where breeding pairs were documented in 2004 (NPS, 2005).

California Species of Concern and Species of Park Concern

Animals

Northern goshawk is a secretive species found in mature or old growth coniferous forests within the park. Park staff has confirmed that this species nests in the park (NPS, 2008b) in similar habitat as the project area in areas less than five miles distant. This species may, however be unlikely to use habitat within the project area due to relatively high levels of human activity.

American dipper requires clear fast-moving water. It is confined to clear, clean streams and rivers with rocky shores and bottoms in mountains. This species has been documented as occurring in the project vicinity during annual mist netting efforts in Drakesbad Meadow and likely uses habitat in and along Hot Springs Creek for foraging and nesting.

Vaux's swift forages for insects over rivers and lakes and requires hollow trees and snags for nesting and roosting. The species has been documented in Lassen Volcanic National Park and there is suitable habitat present within the project area.

Yellow warblers nest in shrubby riparian thickets associated with streams and wetlands. Young of the year, as well as adults have been caught during annual mist-net efforts at Drakesbad Meadow, suggesting that the species breeds in the area.

Rufous hummingbird does not breed in Lassen Volcanic National Park but are found in the Park during spring and fall migration. Relatively large numbers of dispersing juveniles have been documented using riparian habitat in Drakesbad Meadow (NPS, 2005).

California spotted owl is associated with multi-storied coniferous forests with greater than 70% canopy cover. Trees larger than 30 inches in diameter are used for nesting. There are currently two known nesting pairs in Lassen Volcanic National Park. A non-breeding pair nested in Warner Valley in 2005. NPS staff surveys Warner Valley each summer but have not observed California Spotted Owls since 2005 (NPS, 2008b).

Five bat species are identified by the California Natural Diversity Database (CNDDB) as having potential to occur within the general project area – silver-haired bat, hoary bat, fringed myotis, long-legged myotis, and Yuma myotis. The first two of these species may only occur as transients but have been collected in and around Lassen Volcanic National Park in June and July (CNDDB, 2008), suggesting that they may breed in the area. The myotis species are most likely to occur and breed within the project area. These bats roost in conifers beneath loose bark or in cavities and may form maternity colonies in old growth trees or snags with large cavities. Other landscape features associated especially with hibernacula and maternity colonies (such as significant lava tubes, caves, and abandoned mines) are largely absent from the park (NPS, 2008b). Cliffs and rocky slopes also provide potential bat habitat. The mosaic of large, open Drakesbad Meadow, providing a ready source of insects, and surrounding conifers may provide optimal habitat for myotis bats in particular.

Sierra Nevada snowshoe hare is known to inhabit Lassen Volcanic National Park (NPS, 2008b). This hare is common in the Sierras but is seldom seen. Preferred habitat includes dense thickets of alder and willow associated with streams and the species may occur in and around Drakesbad Meadow.

Plants

There are 18 plant species listed by the California Native Plant Society found within the vicinity of Warner Valley. None of these species are currently listed by CDFG or USFWS but they are all being tracked by the CNDDB. CNPS lists species because they are rare, endemic, or declining in all or part of their range. On this basis NPS considers these species to be of special concern. Two of these special-status plants are found only at high elevations in subalpine to alpine habitat and would not occur within the project area. The remaining 16 species are plants of creekbanks, seeps, wet meadows, bogs, and fens. Although none have been documented within the project

area, their presence cannot be ruled out, in Drakesbad Meadow, around the shores of Dream Lake, in the seeps along the water tank access road, or in the other small wetlands or numerous creeks that occur locally. Refer to Table B-1 in Appendix B for the names, habitat preferences, and potential to occur within the project area for each of these plant species.

References

Beier, P., 1998. *Assessment of Beaver (Castor Canadensis) Habitat in Lassen Volcanic National Park.*

California Department of Fish and Game (CDFG), 2008. Wildlife Habitat and Data Analysis Branch, California Natural Diversity Database, *data request for the Mt. Harkness and Reading Peak 7.5-minute USGS topographic quadrangles*. Commercial version 3.0.5.

California Native Plant Society (CNPS), 2008. Electronic Inventory of Rare and Endangered Plants of California, Version 7-06a 1-24-06, *data request for the Mt. Harkness and Reading Peak 7.5-minute USGS topographic quadrangles*, http://www.cnps.org/inventory, accessed October 3, 2008.

Cowardin, Lewis M., et al., 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service.

Fellers, G.M., 1981. *Historical Evaluation and Management Recommendations for Beavers at Lassen Volcanic National Park*.

Johnson, Louise, Chief of Natural Resources Management, 2005. *Wetlands of Warner Valley.* Lassen Volcanic National Park, 6 September.

Patterson, L. and D.J. Cooper, 2005. *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California*, Graduate Thesis.

National Park Service (NPS), Wildlife Observation Database (NPS WOD), Lassen Volcanic National Park, not published.

National Park Service (NPS), 2002. *General Management Plan and Final Environmental Impact Statement, Lassen Volcanic National Park*, February.

National Park Service (NPS), 2005. *Lassen Volcanic National Park: Summary of Monitoring Activities for 2003-2004*.

National Park Service (NPS), 2008a. *Final Report: Comprehensive Site Plan for the Restoration and Preservation of Warner Valley*.

National Park Service (NPS), 2008b. *Lassen Volcanic National Park Weed Management Plan and Environmental Assessment*.

United States Fish and Wildlife Service (USFWS), 2008. *Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Mt. Harkness and Reading*

Peak U.S.G.S. 7 1/2 Minute Quads, Document Number: 081003030542, Database Last Updated: January 31, 2008, accessed October 3, 2008.

Young, W.N., 2000. *Condition Survey Report, Safety Evaluation of Existing Dams (SEED Program)-National Park Service (NPS), Dream Lake Dam, Lassen Volcanic National Park, California*.

Ziegenbein, M.S. and Smillie, G., 2002. *Memorandum to the Superintendent of Lassen Volcanic National Park, Trip Report—Dream Lake Dam Survey and Restoration Recommendations, Lasssen Volcanic National Park*.

3.4 Soundscapes

Noise-Sensitive Uses

Sound levels are the audible intensities of air pressure vibrations, and are most often measured with the logarithmic decibel (dB) scale. To consider the human response to the pitch and loudness of a given sound in the context of environmental noise, the A-weighted frequency dependent scale (dBA) is usually employed. The equivalent energy indicator, Leq, is an average of noise over a stated time period, usually one-hour. The day-night average, Ldn, is a 24-hour average, which accounts for the greater sensitivity of most people to nighttime noise. Generally, a 3 dB difference at any time is noticeable to most people and a difference of 10 dB is perceived as a doubling of loudness.

Certain types of land uses are considered to be more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure time and intensity) and the types of activities typically involved with these land uses. Schools, libraries, churches, hospitals, convalescent and nursing homes, auditoriums, parks, and outdoor recreation areas are generally more sensitive to noise than are commercial and industrial land uses. Residences may also be considered noise-sensitive uses because residents may be disturbed by noise. Land uses within the project area are a combination of recreational and open space. There is also some road traffic in and out of the project area.

Natural Soundscapes

In a park setting, a natural soundscape is an area characterized by certain ambient acoustical and sound level qualities, absent the intrusion of sounds caused by humans or human technology. Park natural soundscape resources encompass all the natural sounds that occur in parks, including the physical capacity for transmitting those natural sounds and the interrelationships among park natural sounds of different frequencies and volumes. Natural sounds occur within and beyond the range of sounds that humans can perceive, and they can be transmitted through air, water, or solid materials (NPS, 2006).

The natural soundscape is a component of any park setting that is intended to be managed or appreciated as natural, such as wilderness areas. The natural soundscape is viewed as a resource, as having value for its presence, and as a value to be appreciated by visitors. Many park visitors have an expectation of seeing, hearing and experiencing phenomena associated with a specific natural environment. The sounds made by wind, birds, geysers, elk, wolves, waterfalls, and many other natural phenomena are associated by visitors with unique features and resources of parks (Rogers, 2000).

Intrusive sounds are also a matter of concern to park visitors. As was reported to the U.S. Congress in the “Report on the Effects of Aircraft Overflights on the National Park System,” a system-wide survey of park visitors revealed that nearly as many visitors come to national parks to enjoy the natural soundscape (91 percent) as come to view the scenery (93 percent). Noise can also distract visitors from the resources and purposes of cultural areas--the tranquility of historic settings and the

solemnity of memorials, battlefields, prehistoric ruins, and sacred sites (NPS, 2000). There are no air tour permits issued for the park and the park does not intend to approve any air tour permits over the park.

Many animal species are sensitive to increase sound levels and it is assumed this sensitivity contributes to decreased wildlife in developed areas.

Existing Noise Sources

Background noise in the park is generally much lower than that expected or tolerated in developed areas in which federal noise guidelines are generally applied. In the times that Warner Valley is closed to visitors, the ambient noise in the environment is primarily influenced by natural soundscapes. Park operations generate noise intermittently from personnel, vehicles, generators, hand tools such as hammers and power saws, heavy equipment such as backhoes and tractors, and smaller power equipment such as chain saws and weedeaters. Noise from park operations above ambient levels is confined to daylight hours (NPS, 2004; NPS, 2005).

During the peak tourism season, noise can be attributed to motor vehicles travelling along the parks access roads and to human use of recreational facilities. These include Drakesbad Guest Ranch, multiple picnic sites, and various restroom facilities. Noise associated with park maintenance also increases during peak season as a result of increased use. Additionally, occasional aircraft overflights also contribute to the ambient noise environment.

Regulatory Requirements

National Park Service 2006 Policies

The 2006 National Park Service Management Policies delineate its Soundscape Management Polices. These policies are designed in accordance with the Organic Act of 1916 and strive to manage National Parks in a way that will preserve them for the use of future generations. The National Park Service will preserve, to the greatest extent possible, the natural soundscapes of parks. Some natural sounds in the natural soundscape are also part of the biological or other physical resource components of the park. Examples of such natural sounds include:

- Sounds produced by birds, frogs, or katydids to define territories or aid in attracting mates;
- Sounds produced by bats or porpoises to locate prey or navigate;
- Sounds received by mice or deer to detect and avoid predators or other danger;
- Sounds produced by physical processes, such as wind in the trees, claps of thunder, or falling water.

NPS will restore to the natural condition wherever possible those park soundscapes that have become degraded by unnatural sounds (noise), and will protect natural soundscapes from unacceptable impacts. Using appropriate management planning, superintendents will identify what levels and types of unnatural sound constitute acceptable impacts on park natural soundscapes.

The frequencies, magnitudes, and durations of acceptable levels of unnatural sound will vary throughout a park, being generally greater in developed areas. In and adjacent to parks, NPS will monitor human activities that generate noise that adversely affect park soundscapes, including noise caused by mechanical or electronic devices. NPS will take action to prevent or minimize all noise that through frequency, magnitude, or duration adversely affects the natural soundscape or other park resources or values, or that exceeds levels that have been identified through monitoring as being acceptable to or appropriate for visitor uses at the sites being monitored.

Directors Order 47 – Soundscape Preservation and Noise Management

Directors Orders are one of several types of written guidances created for the proper management of national parks. The key directive from Director's Order 47 is that where natural soundscape conditions are currently not impacted by inappropriate noise sources, the objective must be to maintain those conditions. Where the soundscape is found to be degraded, the objective is to facilitate and promote progress toward the restoration of the natural soundscape. There are eleven instructions and requirements outlined in Director's Order 47. They are listed below and incorporated into the discussion of environmental consequence if applicable.

1. Applicable Policies
2. Reference Manual
3. Soundscape Preservation and Noise Management Planning
4. Interim Noise Management Measures
5. Inventorying and Monitoring the Soundscape
6. Establishing Soundscape Preservation Objectives
7. Defining Impacts on Park Soundscapes
8. Constructive Engagement
9. Air Tour Management Planning
10. Interpreting the Soundscape to Visitors
11. National Program Steering Committee

References

National Park Service (NPS), 2004. Lassen Volcanic National Park, *National Park Service Cultural Landscapes Inventory*.

National Park Service (NPS), 2005. *Cultural Landscape Report for Drakesbad Ranch*.

National Park Service (NPS), 2000. *Director's Order (D.O.) #47, Soundscape Preservation and Noise Management*.

National Park Service (NPS), 2006. U.S. Department of the Interior, *Management Policies 2006*.

Rogers, Jennifer, 2000. *Lassen Volcanic National Park Visitor Study Summer 1999*, Visitor Services Project Report 116.

3.5 Cultural Resources

Introduction

Archaeological Resources

It is not definitively known when human habitation in California first began, though research has this event occurring sometime before 10,000 B.C. This first period of human occupation is commonly referred to as the *Paleo-Indian Period*, characterized by small groups of nomadic hunter gatherers faced with different ecologic-climatic environments than those familiar to modern-day Californians (Fagan, 2003). Recent scholarship proposes a date range for the Paleo-Indian Period as before 5000 calibrated B.C. (Jones & Klar, 2007). There is little evidence that Paleo-Indian populations hunted regularly at higher elevations, however some isolated Paleo-Indian fluted points have been found in northeastern California, as have several Paleo-Indian sites been discovered along Honey Lake (Chartkoff & Chartkoff, 1984; Jones & Klar, 2007: 169).

Following the Paleo-Indian Period is the *Post-Mazama Period*, dating from 5000 calibrated B.C. to 3000 calibrated B.C. (Jones & Klar, 2007). Post-Mazama cultural traits include "semi-subterranean house structures…morphologically distinctive artifacts" such as "large side-notched projectile points, antler wedges, mortars with V-shaped bowls and pointed pestles, T-shaped drills, tanged blades, and flaked stone pendants" (Jones & Klar, 2007: 170). After the Post-Mazama Period comes the *Archaic Period*, representing a continuation of earlier traditions along with an increase in population size and a change in subsistence strategy, as well as the development and implementation of new technologies (Chartkoff & Chartkoff, 1984). Dates for the Archaic Period as defined by Jones & Klar (2007) span between 3000 calibrated B.C. and calibrated A.D. 1400. Typical material culture types from the Archaic include, but are in no way limited to, an expanded flaked tool assemblage, the appearance of "U-shaped grinding bowls and flat or round-ended pestles", and the "occupation of large semisedentary villages", along with "elaborations in material culture, house construction, obsidian production, and ceremonial activity" (Jones & Klar, 2007: 171-174).

Several ethnographic Native American tribes were present within the Lassen area, among them the Atsugewi, Yana, Yahi, and Maidu. The Mountain Maidu tribe is most notably associated with the Warner Valley area (NPS, 2005). Lassen Peak had particular importance, as evidenced by its inclusion in local myths and Native lore (NPS, 2002). The respective territories for these groups converged on Lassen Peak with the Atsugewi spreading from the mountain to the north and east, the Yana to the west, the Yahi to the south, and the Maidu to the south-southeast (Kroeber, 1925; Jones & Klar, 2007). Hunting, fishing, and gathering were essential to the subsistence strategy for these groups. Access to seed resources such as acorns was limited and therefore of less importance to the overall strategy employed by these populations (Jones & Klar, 2007). Like most of the mountainous regions of California, the Lassen area was not conducive to year-round living (Chartkoff & Chartkoff, 1984). Contained within the Lassen Volcanic National Park are numerous cultural resources that collectively represent nearly 4,000 years of human habitation. Specific cultural resources include a large village, lithic workshops, and several seasonal campsites (NPS, 2002).

As of 2009, nine percent of the Park had been surveyed and approximately 106 archaeological sites have been recorded (Svinarich, personal communication, 2009).

The first known person of European descent to settle in Warner Valley was Edward R. Drake (1830-1904), at the location which would later be known as the Drakesbad Guest Ranch area; it is possible that Drake arrived as early as 1875 (NPS, 2004a). In the 1880s, records show that Drake purchased a land claim to property in Hot Springs Valley and over the next decade, he successfully acquired additional property. By 1900 Drake's land holdings totaled 400 acres and included many hot springs and other thermal features associated with the Mount Lassen volcano (NPS, 2007a). It was also in the early years of the 20th Century that Alex Sifford first came to what was called Drake's Place. A. Sifford purchased acreage from Drake thus beginning the further development of Drake's Place as a tourist operation, hence the name "Drakesbad" (NPS, 2004b). In 1916 Lassen Volcanic National Park was established for public recreation and "for the preservation from injury or spoliation of all timber, mineral depositions and natural curiosities or wonders" (NPS, 2003). Drakesbad and Warner Valley was officially purchased by the National Park Service in 1958, completely removing Sifford's ownership by the fall of 1959 (NPS, 2004b: Part 2b, page 3).

Archaeological investigations within Lassen Volcanic National Park have occurred since the 1950s (NPS, 2005; NPS, 2007c). In 2000, recent archaeological investigation was completed for the Drakesbad Guest Ranch area by the Archaeological Research Program, Department of Anthropology, California State University, Chico. Resulting from this investigation, 5,181.8 acres were surveyed utilizing a combined strategy of high-intensity and moderate-intensity reconnaissance survey strategies (White, 2001). The Archaeological Research Program team identified and recorded 33 isolated finds associated with the prehistory and history of the Drakesbad Guest Ranch area. Isolated finds occur most prevalently along Hot Springs Creek, beginning to the east of Devils Kitchen and continuing east towards the confluence of Hot Springs Creek and Kings Creek. In particular, two concentrations of prehistoric isolated finds are noticeable. One of these finds is immediately east of Devils Kitchen and the second immediately south-southeast of the Drakesbad Guest Ranch area (White, 2001: Figure 7.6). Along with isolated finds, 36 archaeological sites were studied by the Archaeological Research Program project, 20 of which represented revisited sites; the remaining 16 were newly discovered archaeological resources (White, 2001:55). All of the 36 sites contained a prehistoric component, while only five contained evidence of historical use or occupation in conjunction with the prehistoric component. Several of the archaeological resources investigated during the 2000 survey are generally located within the day use area, Warner Valley campground, or Drakesbad Guest Ranch locality (White, 2001).

Cultural Landscape

Detailed Cultural Landscape Inventory and Cultural Landscape Reports for the Drakesbad Guest Ranch have been completed (NPS 2004b, 2005). The Cultural Landscape Inventory report (NPS, 2004b) serves as the primary source for the following discussion of the Drakesbad Guest Ranch. Numerous other background studies have been completed for the Drakesbad Guest Ranch area, many of which are also referenced here.

The Drakesbad Guest Ranch represents a 440-acre historic vernacular landscape in Warner Valley, representing a period of significance from 1900 to 1952. Initially founded as "Drake's Place" by Edward Drake in the late 19th Century, this property evolved into "Drake's Hot Springs and Resort" for camping and tourism and eventually "Drakesbad." Most early development by Drake emphasized improvements that would immediately meet Mr. Drake's personal needs and interests. Drake, from the beginning, permitted the public access to the surrounding area and use of his property for camping and recreation (NPS, 2004b: Part 3a, page 9). The Drakesbad Guest Ranch cultural landscape includes the primary guest ranch building cluster, as well as several natural landscape elements that were core areas of use during the period of significance, among them being Devils Kitchen, Dream Lake Dam, Boiling Springs Lake, and Indian Rock. The primary guest ranch building cluster was used for accommodating guests and for keeping saddle horses, consisting of auxiliary structures around Drake's "big house" which was specifically built as a hotel. Along side such manmade elements are several natural systems and man-modified natural features that influenced and encouraged "the establishment and development of the facilities, infrastructure, and defined the landscape character of" the Drakesbad Guest Ranch (NPS, 2004b: Part 3a, page 4), particularly Drakesbad Meadow and Dream Lake Dam.

Alex Sifford later arrived at Drakesbad, further contributing to the improvement of Drakesbad Guest Ranch. Improvements included the expansion of the primary building cluster, the enhancement of Drakesbad Meadow, road and trail improvements, and the construction of Dream Lake Dam. Among the trails attributed to A. Sifford and his son was the Head of the Valley Trail, Devils Kitchen Trail, High Trail above Devils Kitchen, and South Trail along Hot Springs Creek from the main campground towards the east park boundary (NPS, 2008: 43). The Boiling Springs Lake Trail is also an historic trail built by Sifford to link the 40-acre parcel he purchased from Edward Drake in 1901 with Drake's core property. Circulation is considered to be a contributing landscape characteristic to the Drakesbad Guest Ranch (NPS, 2004b: Part 3b, page 3). To offer fishing and boating opportunities to visitors at Drakesbad Guest Ranch, R.D. Sifford "dammed a natural drainage in the hill slope above the south bank of Hot Springs Creek to form 'Dream Lake'" (NPS, 2004b: Part 1, page 5). The earthen dam was originally constructed in 1932, followed by two reconstructions in 1938 and 1952. Dream Lake Dam is considered a contributing resource (structure) of the historic district (NPS, 2008: 42-43; NPS, 2004b: Part 3b, page 13).

In October 2003, the Drakesbad Guest Ranch was officially listed on the National Register of Historic Places as an historic district, identified as having significance at the state level according to Criterion A due to "its direct and significant association with regional conservation and with the development of the northern California tourism industry" (NPS, 2004b: Part 1, page 17). Of the extant buildings at Drakesbad Guest Ranch, 10 are from the historic period. The Drakesbad Lodge is listed in the National Register of Historic Places and 9 others are listed as contributing to the historic district, including the dining hall, food locker, bunkhouse, and six cabins (four cottages, Manager's Cabin and Annex) (NPS, 2005). "The historic district boundary includes Edward Drake's original cash entry and homestead claims and a non-contiguous forty-acre parcel purchased by Sifford from the state of California in 1901 which contains most of Boiling Springs Lake" (NPS, 2004b: Part 1, page 5).

The Warner Valley Ranger Station is an historic structure representing the first building constructed by the Park Service in 1926. It was subsequently damaged by heavy snow during that next winter and rebuilt in 1927 (NPS, 2007b). This structure is officially listed on the National Register of Historic Places in 1978 (NRHP, 2008).

References

Chartkoff, Joseph, and Kerry Chartkoff, 1984. *The Archaeology of California*. Stanford, California: Stanford University Press.

Fagan, B.M., 2003. *Before California: an archaeologist looks at our earliest inhabitants*. Walnut Creek, California: AltaMira Press.

Jones, T.L. and K.A. Klar, 2007. *California Prehistory: Colonization, Culture, and Complexity*. Lanham, Maryland: AltaMira Press.

Kroeber, A.L., 1925. *Handbook of the Indians of California*. Reprint 1976. New York, New York: Dover Publications, Inc.

National Park Service (NPS), 2002. *Lassen Volcanic National Park, General Management Plan & Final Environmental Impact Statement*.

National Park Service (NPS), 2003. *Lassen Volcanic National Park, General Management Plan*. June.

National Park Service (NPS), 2004a. *Lassen Volcanic National Park, Historic Preservation Report: Record of Treatment – Rehabilitation of the Historic Root Cellar and Lodge Fireplace Structure at Drakesbad Guest Ranch*. U.S. Department of the Interior: Washington, D.C.

National Park Service (NPS), 2004b. *Cultural Landscapes Inventory: Drakesbad Guest Ranch*.

National Park Service (NPS), 2005. *Cultural Landscape Report for Drakesbad Guest Ranch*.

National Park Service (NPS), 2007a. *Drakesbad Guest Ranch – A History In Photographs*. Available online at http://www.nps.gov/lavo/historyculture/drakesbad_home.htm, accessed October 2, 2008.

National Park Service (NPS), 2007b. *History Notes*. Available online at http://www.nps.gov/lavo/forteachers/upload/HISTORY_NOTES.pdf, accessed October 6, 2008.

National Park Service (NPS), 2008. *Final Report: Comprehensive Site Plan & EIS for the Restoration & Preservation of Warner Valley*, July.

National Register of Historic Places (NRHP), 2008. *State Listings: California, Plumas County*, http://www.nationalregisterofhistoricplaces.com/CA/Plumas/state.html, accessed October 6, 2008.

Svinarich, Joe, Klamath Network Fire Archaeologist, personal communication, July 2009.

White, G.G., 2001. *Report of Archaeological, Geoarchaeological, and Palynological Investigations in Lassen Volcanic National Park, California*. Prepared for Lassen Volcanic National Park, 7 May.

3.6 Visitor Experience

Introduction

One of the purposes of the Warner Valley Comprehensive Site Plan is to improve visitor experience through educational, interpretive, and recreational opportunities in the Park. Visitor use throughout the park is summarized in the *Commercial Services Plan and Environmental Assessment* published in 2005. This publication found the average number of park visits to be about 380,000 visits per year from 1995-2005. The park is open year-round, however access through the park on the main road is usually only available from June through October due to heavy snowfall. The four-month period between June and September typically accounts for nearly 80 percent of the annual visitation. Substantial drops in visitation can occur during years of early road closure and late spring road openings due to snow (NPS, 2005).

Visitor Use Levels

The majority of visitors to Lassen Volcanic National Park (Lassen) are touring the region. They spend about a half-day driving through the park and stopping at interpretive attractions. While it is not considered a destination park, approximately 25 percent of visitors stay overnight in the park. A much larger majority stay overnight outside the park in a nearby community (NPS, 2008). There are several campgrounds and commercial lodging at Drakesbad Guest Ranch. The park provides a total of 485 individual sites and 15 group campsites in nine campgrounds. Most group campsites are located at the Lost Creek, Butte Lake and Juniper Lake campgrounds. During Fiscal Year 2004, 13,159 visitor nights (number of campers multiplied by the number of nights stayed) were recorded at Manzanita Lake, which is the park's most heavily used campground (NPS, 2005). In the backcountry and wilderness an average of 7,600 overnight stays per year have occurred over the between 1995-2005. Visitation at Lassen is highly seasonal. While some use of the park occurs year around by cross-country skiers and snow shoers, significant visitation levels do not occur until the main road can be opened. July and August are the peak visitation months, accounting for nearly half of the annual visitation in 1999. The four month period June-September accounted for nearly 80 percent of the annual visitation for that year.

Drakesbad Guest Ranch

Drakesbad Guest Ranch provides rustic overnight accommodations and various recreation opportunities for its guests such as hiking, horseback riding, wildlife viewing, fishing, canoeing and swimming. Drakesbad Guest Ranch consistently operates at near full capacity during the summer season, averaging about 5,500 overnight stays per year during 1995-2005. The clientele at Drakesbad Guest Ranch tend to be repeat visitors that have been coming back generation after generation for many years (NPS, 2005). At the Drakesbad Guest Ranch guests stay for an average length of five days in the months of July and August and three days in June, September, and October. The average number of reservations made each year is usually around 800-900 (Johnson, 2005). There are 19 guest rooms with a capacity of approximately 70 guests per night. The number of guest rooms will remain the same under each alternative.

Warner Valley Campground

The Warner Valley Campground is open from June 5th-September 22nd, with water, then dry camping until October 13th, weather permitting. It is located one mile west of the Warner Valley Ranger Station via a dirt road. There are 18 campsites that accommodate up to three tents, with a limit of 6 people per site. Campground usage in 2004 and 2005 is shown in **Table 3.6-1**.

TABLE 3.6-1
WARNER VALLEY CAMPGROUND USE IN 2004 AND 2005

Month	# of Tents	# of RVs
2004		
June	153	10
July	175	27
August	121	15
September	65	3
October	16	2
2005		
June	72	32
July	157	32
August	245	37

SOURCE: Johnson, 2005

Driving

Warner Valley is a part of the "Remote Access Road Zone," one of the eight management zones outlined in the General Management Plan. Management zone prescriptions provide the basis for a system of management intended to ensure that resources are passed on unimpaired to future generations and visitor experiences remain high quality.

Within the Remote Access Road Zone the driving experience give the visitor a sense of being in a largely undisturbed natural environment. Regularly maintained roads and directions signs are the only facilities present.

In 2005, traffic counts within the Warner Valley were measured on Warner Valley Road and totaled 920 in July and 1056 in August. In 2004 the following estimates were calculated: June: 898, July: 1294, August: 1480, September: 1522, October: 1209, and November: 13. See Section 3.8, Transportation for more information on this topic.

Visitor Experience

The park's interpretive program provides visitors with opportunities to learn about park phenomena. The program includes handout materials, wayside exhibits, interpretive programs, and roving interpreters. A visitor study conducted in 1999 identified the most common activity for visitors to be scenic driving, followed in descending order by visiting geological/geothermal features, photography, hiking, picnicking, camping, visiting Loomis Museum, nature study,

attending ranger-led programs, fishing, and backpacking overnight. In this same study, when visitor groups were asked how much time they spent in Lassen Volcanic National Park, 58 percent spent less than one day in the park. Of the groups that spent less than a day at the park, 49 percent spent four hours or less, while 22 percent spent seven hours or more (Rogers, 2000).

Lighting

Very little artificial lighting occurs in Warner Valley, given that no commercial power is available beyond the town of Chester. The only lighting at the ranger station is from portable propane bottle lanterns. The campground has no lighting (other than camper's flashlights and lanterns) and the Drakesbad Guest Ranch has electric lighting in the dining hall, kitchen, and lodge, which are powered by the diesel generator (Johnson, 2005). See Section 3.9, Scenic Resources for more information on lighting.

References

National Parks Service (NPS), 2005. *Lassen Volcanic National Park Commercial Services Plan and Environmental Assessment*, Lassen Volcanic National Park, June.

National Parks Service (NPS), 2008. Lassen Volcanic National Park official website, www.nps.gov, accessed October 1, 2008.

Rogers, Jennifer, 2000. *Lassen Volcanic National Park Visitor Study Summer 1999*, Visitor Services Project Report 116.

Johnson, Louise, Chief of Natural Resources Management, 2005. Lassen Volcanic National Park, written communication, 6 September.

3.7 Public Health and Safety

Introduction

One of the purposes of the action to develop the Warner Valley Comprehensive Site Plan is to address safety concerns in Warner Valley; evaluate the appropriateness and adequacy of existing infrastructure with respect to visitor safety; and to protect public health and safety by addressing structural concerns of Dream Lake Dam, which impounds Dream Lake. The following existing conditions describe these areas of concerns for public health and safety.

Entry to Warner Valley

At the entry to Warner Valley, there is a lack of adequate room for parking and the fee station is located on a blind curve. The iron ranger (which is where fees are deposited when a ranger is not on duty) is located in a natural drainage way with soft soils, so braking and accelerating of cars causes excessive wear on the road. The location of the water tank road leads to confusion at the entrance and there is a blind curve one-half mile past the ranger station. Safety incidents within Warner Valley have resulted in a five-year average of 5-6 incidents per year. This number includes visitor injuries attributed to the park or environment, as well as illness and employee incidents that required emergency response.

Campground, Trail Use and Day Parking

Lower Campground

There are safety issues regarding the close proximity of the campsites to the creek and the road. A steep slope down from the campsites to the creek poses a hazard to visitors. Dust from cars on Warner Valley Road impact the visitors staying in the campground.

Upper Campground

The upper campground is located on the north side, above Warner Valley Road, and is the larger of the two campgrounds. It has the capacity to accommodate additional campsites. The parking area configuration degrades the adjacent vegetation. Dust produced by cars on Warner Valley Road is a concern in this campground as well.

Trail Use

The Pacific Crest Trail (PCT) at the north side of the upper campground is disconnected from the rest of the Warner Valley trail system and presents a hazardous situation for hikers where it connects for a stretch along Warner Valley Road towards Drakesbad Guest Ranch.

Concessioner Employee Housing

There are currently fifteen concessioner staff housed in a combination of temporary trailers, a dormitory above the dining hall and a space above the laundry called the “bunk house”. Concessioner housing is inadequate, there is a lack of adequate capacity for seasonal staff, potential fire hazards exist and construction is substandard.

Bathhouse and Pool

The bathhouse facilities are in a state of disrepair. There is a lack of adequate space, and facilities are not accessible to the physically disabled.

3.8 Transportation

Introduction

The Lassen Volcanic National Park 2002 General Management Plan states that among the purposes of the Warner Valley Comprehensive Site Plan are provisions for cost-effective solutions to address Warner Valley road safety concerns, and to improve circulation and parking. Issues addressed in this section are provision of visitor access while protecting cultural landscape, and historical and natural resources. Alternatives for transportation improvements to the visitor entry sequence, road improvements, and day use / trailhead parking will be evaluated in this section.

Vehicle Access

Regional access to the Warner Valley area is provided by State Highway 36, a two-lane road that connects Susanville on the east with Red Bluff on the west. Local access is provided via Chester on the Warner Valley Road, which connects with Feather River Road extending from the town of Chester; the road from Chester is an approximate 17-mile drive (the last three miles are of compacted gravel construction with a 20-foot width).

Vehicle Circulation

As vehicles enter the Park in Warner Valley, drivers first encounter the fee station ("iron ranger"[1]). Currently, visitors have to stop their vehicles in the road, or park at the ranger station and walk back 100 feet to access the fee station. In addition, the fee station is located on a blind curve. Another feature of the area is a small gravel road leading to the water tank that supplies the Ranger's station; this road creates confusion to visitors who mistake it for an access road. Approximately one-half mile past the ranger station, the road dips and then rises abruptly around a blind curve. Site circulation at Drakesbad Guest Ranch is rural in character, with rocks/logs defining the circulation patterns. Over time, the edge "creep" of parking areas and roads has created unclear zones for traffic.

Parking Areas

Located at the western edge of Drakesbad Meadow, the Day Use Parking Area consists of a gravel parking lot accommodating approximately 12 cars. At the Drakesbad Guest Ranch, there is a lack of defined parking spaces (with an approximate total of 70 spaces), with guests and staff currently parking vehicles wherever there is clear space to park.

[1] An iron ranger is a fee collection box used at campgrounds, day-use facilities, etc. when those sites do not have full-time attendants.

3.9 Scenic Resources

Introduction

The Organic Act of 1916 requires that the National Park Service promote and regulate the national parks "…by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The park resources and values that are subject to the no impairment standard include *"the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility both in daytime and at night…"*

Scenic resources are an essential component of Warner Valley's resources. The scenic resources are not only an indicator of the health of the park environment but also a large part of the visitor experience. The Warner Valley Visitors study, written in 1999 found that 96 percent of respondents felt that scenic views were a very or extremely important part of their experience. Additionally, 94 percent said that natural features were a very or extremely important part of their experience.

Critical Viewsheds

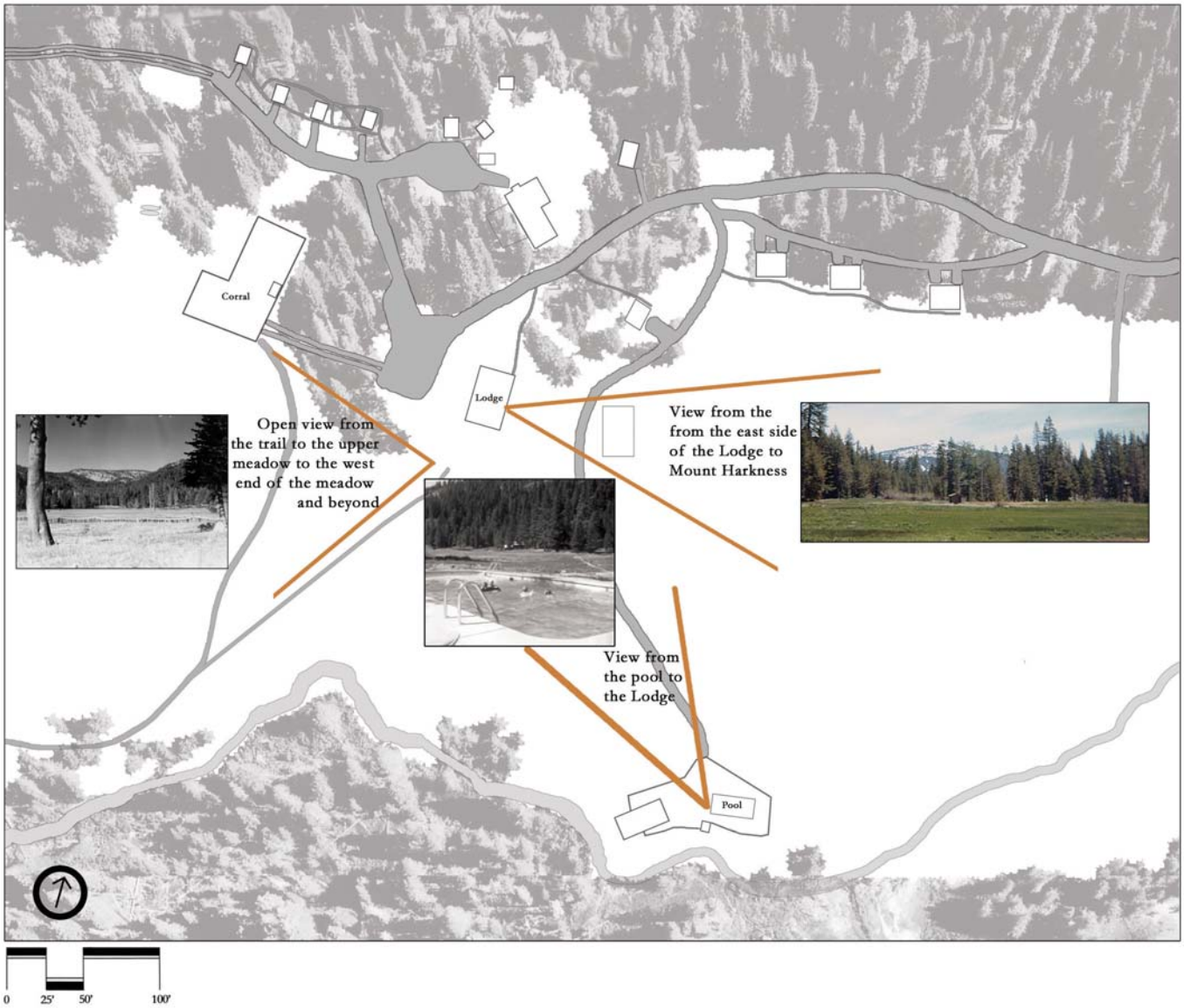
The 2005 Cultural Landscape Report for Drakesbad Guest Ranch indentifies three critical and historic viewsheds for Warner Valley (see **Figure 3.9-1**): the view from the east side of the Drakesbad lodge to Mount Harkness, the view from the pool to the Drakesbad lodge, and the view from the trail to the upper meadow to the west end of the meadow. Existing scenic resources as seen from the three viewsheds will serve as base line conditions and changes to the viewshed that may result from the proposed project and its alternatives will be discussed.

Mount Harkness

Mount Harkness is located in the south east corner of Lassen Volcanic National Park and to the east of Warner Valley. The view from the east side of the lodge to Mount Harkness is one of the critical viewsheds.

Drakesbad Lodge

There are approximately 20 structures located at Drakesbad Guest Ranch. They are primarily clustered on a relatively narrow land bench above the meadow. Because of the historic nature of the buildings much of the surrounding vegetation is native. With few exceptions, ornamental vegetation (annuals and perennials, non-native shrubs and trees) was not used at Drakesbad Guest Ranch. However, some non-native and native vegetation exists today within the core area,



SOURCE: Cultural Landscape Report for Drakesbad Guest Ranch, National Park Service

Warner Valley Restoration and Preservation

Figure 3.9-1
Critical Viewsheds

reflecting both historic and non-historic uses. Historic photos reveal expansive views from the pool to Drakesbad Lodge.

Drakesbad Meadow

The large open space of Drakesbad Meadow is a dominant cultural landscape feature of the historic district and one of the primary components of the viewsheds of Warner Valley. Part of the meadow is a fen while other parts are open grasslands and wetlands. In addition to being a valuable natural resource, the meadow provides long vistas to major park features. These vistas shall be maintained as part of the cultural landscape.

The 70 acres comprising the meadow were actively managed during the historic period. Management included various activities such as construction of ditches to drain and irrigate the meadow, active and cyclic removal of willow and alder thickets, and grazing livestock creating an open pastoral character. With the identification of additional resource values, the change in land use (removal of grazing) and vegetation management practices, the historic character of the meadow has begun to change and vegetation growth is obscuring the historic views. The view from the trail to the upper meadow to the west end of the meadow is one of the critical viewsheds.

Night Sky

Stargazing capabilities are one of the visual resources in Warner Valley. Artificial lighting can prevent or diminish stargazing capabilities. Very little artificial lighting occurs in Warner Valley, given that no commercial power is available beyond Chester. The only lighting at the ranger station is from portable propane bottle lanterns; the campground has no lighting (other than camper's flashlights); and Drakesbad Guest Ranch has electric lighting in the dining hall, kitchen and lodge (powered by the diesel generator) (Johnson, 2005). However, the view of the night sky remains relatively unobstructed.

Regulatory Requirements

National Park Service Management Policies 2006

Section 4.10 - Lightscape Management

The Service will preserve, to the greatest extent possible, the natural lightscapes of parks, which are natural resources and values that exist in the absence of human-caused light. The absence of light in areas such as caves and at the bottom of deep bodies of water influences biological processes and the evolution of species, such as the blind cave fish. The phosphorescence of waves on dark nights helps hatchling sea turtles orient to the ocean. The stars, planets, and earth's moon that are visible during clear nights influence humans and many other species of animals, such as birds that navigate by the stars or prey animals that reduce their activities during moonlit nights. Improper outdoor lighting can impede the view and visitor enjoyment of a natural dark night sky. Recognizing the roles that light and dark periods and darkness play in natural resource processes and the evolution of species, the Service will protect natural darkness and other components of the natural lightscape in parks. To prevent the loss of dark conditions and of natural night skies,

the Service will minimize light that emanates from park facilities, and also seek the cooperation of park visitors, neighbors, and local government agencies to prevent or minimize the intrusion of artificial light into the night scene of the ecosystems of parks. The Service will not use artificial lighting in areas where the presence of the artificial lighting will disrupt a park's dark-dependent natural resource components.

The Service will:

- restrict the use of artificial lighting in parks to those areas where security, basic human safety, and specific cultural resource requirements must be met;
- use minimal-impact lighting techniques;
- shield the use of artificial lighting where necessary to prevent the disruption of the night sky, natural cave processes, physiological processes of living organisms, and similar natural processes.

The decision about whether or not to install artificial lighting in particular circumstances is left to the discretion of the superintendent and is made through the planning process.

Section 9.1.3.1 - Construction Sites

Construction sites will be limited to the smallest feasible area. The selection of construction sites will consider opportunities for taking advantage of natural sources of lighting, heating, and cooling (e.g., near an existing or potential stand of deciduous trees) to maximize energy conservation. Ground disturbance and site management will be carefully controlled to prevent undue damage to vegetation, soils, and archeological resources and to minimize air, water, soil, and noise pollution. Protective fencing and barricades will be provided for safety and to preserve natural and cultural resources. Effective storm water management measures specific to the site will be implemented, and appropriate erosion and sedimentation control measures will be in place at all times. Solid, volatile, and hazardous wastes will be avoided when possible. When they cannot be avoided, they will be properly stored, transported, and disposed of in compliance with federal, state, and local laws and regulations. All materials will be recycled whenever possible.

A review and approval of any "hot work" (e.g., welding, use of open flame, grinding) will be done to ensure fire safety at the construction site. Visual intrusions will be kept to a minimum. Construction equipment will be in satisfactory condition; i.e., it will be equipped with required safety components and not be leaking hazardous liquids or emitting hazardous or undesirable fumes above allowable legal limits. Care will be exercised to ensure that construction equipment and all construction materials imported into the park are free of undesirable species. The cost of restoring areas impacted by construction will be considered part of the cost of construction, and funding for restoration will be included in construction budgets.

References

National Park Service (NPS), 2005. Lassen Volcanic National Park, *Cultural Landscape Report for Drakesbad Guest Ranch*.

Johnson, Louise, Chief of Natural Resources Management, 2005. Lassen Volcanic National Park, written communication, 6 September.

3.10 Park Operations and Facilities

Introduction

The park operations and facilities at Warner Valley consist of the infrastructure and associated activities to protect and preserve vital resources and provide for an enjoyable visitor experience. Facilities support the following park functions: resource management, visitor protection, interpretation services, facility management, and concessions management. Visitor facilities include the Warner Valley campground, Drakesbad Guest Ranch and associated structures. Infrastructure facilities include buildings, historic structure, trails, roads, bridges, dams, signs, and utilities. Maintenance facilities include the propane tanks, water tanks, sheds and storage facilities.

Project Setting

Visitor Entry

Facilities at the entrance of Warner Valley include a fee station and iron ranger (i.e. receptacle for fees), ranger station (residence), barn, garage, vault toilet, and a pump house. A small gravel road next to the fee station leads to the water tank. See the Transportation section of this document for more information and environmental consequences.

Drakesbad Guest Ranch

The infrastructure associated with the Drakesbad Guest Ranch consists of 15 one- and two-story wood-framed buildings, and a one-story concrete masonry unit building. These buildings include the lodge, dining hall, bathhouse, four cabins, a manager's cabin, bunkhouse, generator shed, cook/storage shed, annex, and three duplex cabins. Drakesbad Guest Ranch is only operated during the summer and early fall (typically early June to mid October).

Dining Hall

The dining hall and adjacent area includes an outdoor dining patio with four tables that are adjacent to the dining hall. The gravel surface is not visually compatible with the natural and cultural landscape and is not Americans with Disabilities Act (ADA)-compliant.

Bathhouse and Pool

This area consists of a pool, filter house and bathhouse including a women's restroom, a men's restroom, two private bathtub areas, four private showers, four private changing stalls, massage room, and a storage/mechanical room.

Campground

The campground has 18 campsites, with five sites in the lower campground, and 13 sites in the upper campground. One of the sites serves as a campground host site. In addition to the cleared tent sites, there are picnic tables, grills, spigots for running water. The restrooms consist of vault toilets and there is no electric service.

Corral

The corral holds 20 horses with a capacity for a maximum of 24 in a space of 7500 square feet. In addition there is a small tack shed, hitch nails and parking area.

Volleyball Court

The 500 square foot sand court is currently located within sensitive meadow landscape.

Park Operations

Utilities

The National Park Service provides water and waste water for Warner Valley. There are two water tanks located in Warner Valley. One water tank, located near the ranger station, provides water for the ranger station; the other located at the western edge of Warner Valley provides water for the Drakesbad Guest Ranch. The concessionaire provides electricity and propane. The sewer line runs under the bridge and leads to leach fields in an open area above the creek. Other utility structures include a dumpster, propane tanks, site storage at the ‘bone yard’, generator, sewer line and overhead power lines at dining hall service area. Other structures associated with Warner Valley include water conveyance structures; a 40,000 gallon water storage tank; and sewage lift station located along Warner Valley access road.

Energy and Conservation Potential

One purpose of the action is to improve sustainability/efficiency of the operations and possibly considering solar power. The eastern edge of Drakesbad Meadow, an open area near the leach field is a possible location for photovoltaic arrays.

The 1999 Memorandum of Understanding between the Department of the Interior and the Department of Energy provides a framework to promote implementation and use of energy-efficient and renewable resource technologies. All new development and construction in the Warner Valley area would minimize energy consumption as practicable by designing energy efficient buildings and employing efficient building systems, equipment and appliances.

Parking

The day use parking area is a gravel lot with space for approximately 12 cars. Currently, the Pacific Crest Trail exits from the lot and crosses a bridge over Hot Springs Creek. There are approximately

70 parking spaces available within the Drakesbad Guest Ranch. See Section 3.8, Transportation of this document for more information and environmental consequences on parking and roads.

Employee Housing

The concessioner housing and service center include a dormitory above the dining hall which holds five employees and a small area above the laundry for the managers.

Walkways and Trails

A number of hiking trails cross through Warner Valley and lead from Drakesbad Guest Ranch to attractions such as Boiling Springs Lake and Devils Kitchen. In addition, the Pacific Crest Trail, a National Scenic Trail that runs 2,638 miles from Mexico to Canada, crosses through Lassen Volcanic National Park at Warner Valley. Throughout Drakesbad Guest Ranch a network of walking paths connect areas between features such as the pool and bathhouse and from the Drakesbad Guest Ranch to the corral.

CHAPTER 4
Environmental Consequences

This section of the Environmental Impact Statement (EIS) describes the potential impacts of each alternative on the topic areas relevant to the project. The topics analyzed in this document include the natural, cultural, and social resources that would be directly, indirectly, or cumulatively impacted as a result of implementation of any alternative proposed in this EIS. This section of the document is organized such that the methodology for impact analysis is described separately in each resource section, followed by the analysis of each alternative.

Cumulative Impacts

Cumulative impacts are the effects on the environment that would result from the incremental impacts of the action when added to other past, present and reasonable foreseeable future actions. The cumulative actions are evaluated in concert with the impacts of an alternative to determine if there are cumulatively considerable and have any additional effects on a particular resource. **Table 4-1** provides a list of projects contributing to cumulative impacts at Warner Valley.

Impairment

In addition to determining the environmental consequences of all alternatives, *NPS Management Policies* and *Director's Order 12, Conservation Planning, Environmental Impact Analysis, and Decision-making*, requires analysis of potential effects to determine if actions would impair resources. In this EIS, determinations of impairment are provided in the conclusion section under each applicable resource topic for each alterative. In accordance with National Park Service (NPS) policy, impairment determinations are made for the following areas: geologic resources and hazards; biological resources; hydrology and water quality; soundscapes; cultural resources; and scenic resources.

The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid or minimize to the greatest degree practicable adverse impacts on park and monument resources and values. However, the laws do give NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given NPS management discretion to allow certain impacts within parks, that discretion is limited by statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute impairment. However, an impact would more likely constitute impairment to the extent it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; or
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park.

Comparison of Impacts

The following comparison table (**Table 4-2**) presents a concise summary of the impacts of each alternative within each resource section. This chapter follows with a separate section for each resource presenting an analysis of the environmental consequences of the Warner Valley Comprehensive Site Plan alternatives for all topics for each alternative, and makes a determination for cultural and natural resource topics for each alternative (impairment is not assessed for visitor experience, public health and safety, transportation, operations and facilities.)

TABLE 4-1
LIST OF PROJECTS CONTRIBUTING TO CUMULATIVE IMPACTS AT WARNER VALLEY

Past

Prehistoric Period

Native Americans have been using Warner Valley for at least 4000 years.

Sifford Period (1900-1952)

This is the period of significance.

NPS Ownership or Influence: 1952-Present

1940s or 1950s – A leach field with 2000 feet of infiltrator pipe is constructed on the north side of Hot Springs Creek between the creek and the road. It was predominantly in the meadow.

1960 – The water system is renovated including new water tank, chlorination plant and water line.

1962 – The existing bathhouse (near pool) is built.

1963 – Three duplex cabins are constructed with Mission 66 funds.

1964 – NPS constructs a bridge and installs a force main across the Hot Springs Creek to a new leach field.

1980 – The existing swimming pool is refinished.

1986 – Wooden fence built around swimming pool.

1990 – Structural report on the historic structures indicates a need for improvement.

1990-2005 – The bulk of the water system is reconstructed.

1999-2008 – Sewer system components replaced.

2000 – A new water main from Drakesbad Guest Ranch to the Warner Valley campground is constructed.

2000s – Concessionaires allow employees to live in travel trailers.

2000s – NPS undertakes several large rehabilitation projects to improve the deteriorating buildings. All work is done in accordance with the Secretaries Standards for Historic Structures.

2001 – Waste water line from bathhouse back to Drakesbad Guest Ranch is slip-lined to prevent leakage.

2008 – Seismic retrofits completed on all non-historic buildings.

---- Trail work and boardwalk construction throughout Warner Valley

---- Periodic road maintenance.

Present

2009 - NPS is constructing a new leach field to replace the failing existing one. It will be located west of the current leach field location.

2009-2010 – Seismic retrofits are being performed on all historic structures.

Reasonably Foreseeable Future

2010 – NPS plans to conduct a fuel reduction treatment (thinning of the forest) to both sides of the Warner Valley Road. The corridor to be thinned would be approximately 500-1000 feet wide and extend east from Warner Valley approximately 2 miles to the park boundary.

The Park has requested funds to replace the fire sprinkler systems in all buildings.

TABLE 4-2
IMPACT COMPARISON TABLE

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
Geologic Resources and Hazards		
Alternative 1 would result in a local, long-term, minor, adverse impact because it results in continued soil compaction, soil loss, and degradation of peat soils in the meadow. Under this alternative, conditions that are detrimental to soil resources would not be adequately addressed or corrected.	Alternative 2 would have an overall moderate, long-term beneficial impact because it reverses damaging effects of erosion, soil compaction, and soil loss.	Alternative 3 would have an overall moderate, long-term, beneficial impact because it corrects adverse effects of soil compaction and soil loss.
Hydrology and Water Quality		
Alternative 1 would have an overall long-term, moderate, adverse impact because it results in 1) continued soil erosion, 2) altered natural surface water flow paths, and 3) water quality impacts. Under this alternative, conditions that are detrimental to the natural hydrologic regime and natural water quality would not be addressed or corrected.	Alternative 2 would have an overall long-term, moderate, beneficial impact because it reverses damaging effects of erosion, enhances surface water flow, improves water quality by reducing sedimentation, and removes Dream Lake Dam, a major impediment to surface water flow and a major contributor to the hydrologic regime.	Alternative 3 would have an overall long-term, moderate, beneficial impact because it corrects many of the adverse effects of erosion, it enhances surface water flow, and it improves water quality by reducing sedimentation.
Vegetation		
Under Alternative 1, ongoing impacts to vegetation would result in local, long-term, minor, adverse effects. However, these impacts would be primarily localized and, while individual trees or small areas of vegetation might be removed or otherwise degraded, the effect would not be considered severe within the context of vegetative resources throughout Warner Valley.	Several activities associated with Alternative 2 would result in long-term, minor, adverse effects on vegetation. However, these impacts would be primarily localized and, while individual trees or small areas of vegetation might be removed or otherwise degraded, the effect would not be considered severe within the context of vegetative resources throughout Warner Valley. Additionally, many of the activities themselves are intended to ameliorate and repair existing degradation of vegetative resources. Restoration of currently degraded areas to a natural condition will be achieved using native stock. Therefore, the net effects of Alternative 2 should be a long-term, minor to moderate beneficial effect on vegetative resources and values.	Activities associated with Alternative 3 would result in long-term, minor, adverse effects on vegetation. However, these impacts would be primarily localized and, while individual trees or small areas of vegetation might be removed or otherwise degraded, the effect would not be considered severe within the context of vegetative resources throughout the Valley. Additionally, some of the activities themselves are intended to repair existing degradation of vegetative resources. Therefore, the net effects of Alternative 3 should be a long-term, minor, beneficial effect on vegetative resources and values.
Wetlands		
Under Alternative 1, ongoing impacts to wetlands would result in local, long-term, minor to moderate, adverse effects. While these impacts would be primarily localized, they would be spread throughout Warner Valley and their combined effects would continue to impact wetland resources and values.	Implementation of the preferred alternative would result in short-term, minor adverse effects on wetlands. However, the preferred alternative would also result in long-term, moderate, beneficial effects on wetlands throughout Warner Valley. There would be a net gain in wetland resources, functions, and values resulting from the preferred alternative and project implementation would serve to substantially reduce the existing impact of wetland resources in the Warner Valley.	As under Alternative 2, Alternative 3 would replace undersized culverts along Warner Valley Road and the day use parking area would be relocated and the wetland that it impinges on would be restored. Replacement of culverts along Warner Valley Road would result in temporary, short-term adverse impacts to wetlands and riparian vegetation where they are present in the streams near the road. Existing impacts on wetland resources in Warner Valley would be addressed to some extent under Alternative 3. The overall net effect on wetland resources

TABLE 4-2 (Continued)
IMPACT COMPARISON TABLE

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
Wetlands (cont.)		
		under Alternative 3 would be minor, long-term, and beneficial and would serve to reduce to some extent, but would not fully address, existing impacts of wetland resources within Warner Valley.
Wildlife		
Under Alternative 1, ongoing impacts to wildlife would result in short-term, minor, adverse effects. However, these impacts would be primarily localized and, while individual animals might occasionally be killed on the road or suffer reproductive failure due to human disturbance, this would be within the natural range of variability of native species' populations and the effect would not be considered severe within the context of wildlife resources throughout Warner Valley.	Under Alternative 2 impacts to wildlife could result from construction of new facilities and other proposed activities and this would result in, short-term, minor, adverse effects. However, these impacts would be primarily localized and, while individual animals might occasionally be killed on the road or suffer reproductive failure due to human disturbance, this would be within the natural range of variability of native species' populations and the effect would not be considered severe within the context of wildlife resources throughout Warner Valley. In addition restoration and enhancement of currently degraded habitat would constitute a long-term, minor to moderate, beneficial, effect on wildlife.	Under Alternative 3, impacts to wildlife could result from construction of new facilities and other proposed activities and this would result in local, short-term, minor, adverse effects. However, these impacts would be primarily localized and, while individual animals might occasionally be killed on the road or suffer reproductive failure due to human disturbance, this would be within the natural range of variability of native species' populations and the effect would not be considered severe within the context of wildlife resources throughout Warner Valley. In addition restoration and enhancement of currently degraded habitat would constitute a minor, beneficial effect on wildlife.
Special-Status Species		
Under Alternative 1, ongoing impacts to special-status species would result in local, long-term, minor, adverse effects. These impacts would be localized and would not jeopardize the continued existence of any species or result in the destruction or adverse modification of critical habitat for any species.	Under Alternative 2, impacts to special-status species would result in local, short-term, minor, adverse effects. These impacts would be localized and would not jeopardize the continued existence of any species or result in the destruction or adverse modification of critical habitat for any species. In addition, enhancement and restoration of habitat as a part of Alternative 2, could potentially result in long-term, minor to moderate, beneficial effects on special-status wildlife by increasing the extent of quality habitat and relocating certain facilities further away from sensitive resources.	Under Alternative 3 impacts to special-status species would result in local, short-term, minor, adverse effects. These impacts would be localized and would not jeopardize the continued existence of any species or result in the destruction or adverse modification of critical habitat for any species. In addition, enhancement and restoration of habitat as a part of Alternative 3 could result in long-term, minor, beneficial effects on special-status wildlife by increasing the extent of quality habitat and relocating certain facilities further away from sensitive resources.
Soundscapes		
Alternative 1 would result in no new impacts to existing conditions. Therefore, Alternative 1 would have a long-term, minor, adverse impact given that Warner Valley has a greater impact under existing conditions on soundscapes than is currently desired by NPS (Eagan, 2009).	Alternative 2 would have short-term, major, adverse impacts but long-term, minor, beneficial impacts.	Alternative 3 would have short-term, moderate, adverse impacts but long-term, minor, beneficial impacts.

TABLE 4-2 (Continued)
IMPACT COMPARISON TABLE

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
Archaeological Resources		
Under Alternative 1, archaeological resources that are vulnerable to deterioration will be monitored by the NPS in accordance with the 2008 Servicewide Programmatic Agreement. Current management practices would continue, and the NPS would continue to protect the integrity of archaeological resources. The no action alternative would have no effect on the park's archaeological resources.	Impacts on archaeological resources with the implementation of Alternative 2 would result in a long-term, minor, adverse impact due to damage from new construction, demolition, rehabilitation of existing facilities and utility corridors, visitor access, and natural processes. Such potential impacts would include deposits, loss of information, and changes in the integrity of archaeological sites. NPS mitigation procedures for the Warner Valley area would be outlined in a Programmatic Agreement with the California SHPO and the ACHP and will be followed to address these impacts (see also Section 4.11, Mitigation Measures).	Impacts on archaeological resources with the implementation of Alternative 3 could result in a long-term, minor, adverse impact due to damage from new construction, demolition, rehabilitation of existing facilities and utility corridors, visitor access, and natural processes. Such potential impacts would include deposits, loss of information, and changes in the integrity of archaeological sites. NPS mitigation procedures for the Warner Valley area would be outlined in a Programmatic Agreement with the California SHPO and ACHP and will be followed to address these impacts (see also Section 4.11, Mitigation Measures).
Cultural Landscape Resources		
The no action alternative would not affect the existing integrity of the cultural landscape, which includes the Drakesbad Guest Ranch Historic District. The noncontributing features present within the Drakesbad Guest Ranch at the time of its nomination to the National Register would remain unchanged. The NPS would continue to conduct routine maintenance and repairs within the area, in accordance with the 2008 Servicewide Programmatic Agreement, to maintain and protect the integrity of the site. The NPS would monitor for potential impacts leading to any change in the integrity of the cultural landscape and would address these impacts as they are identified.	Impacts on cultural landscape resources that would result in a long-term, major, adverse impact include the removal of Dream Lake Dam (a contributing resource to the Drakesbad Guest Ranch Historic District). In addition, proposed changes in circulation, the addition of new structures, and changes in land use would result in moderate adverse impacts to the historic district. The ecological restoration of Drakesbad Meadow also results in a moderate adverse impact to cultural landscape resources. Beneficial effects include the removal of non-historic NPS operations and administrative functions to an area outside the historic district, and the improvement of circulation through the meadow. Collectively, these proposed activities could diminish cultural landscape resources as well as diminish the integrity of the National Register district.	Alternative 3 would result in a long-term, moderate, adverse impact due to alterations of the cultural landscape by the proposed rebuilding of Dream Lake Dam as a contributory feature to the Nationally Registered Drakesbad Guest Ranch property and due to the restoration of Drakesbad Meadow. Alternative 3 would also have long-term, moderate, beneficial effects from the removal of non-historic NPS operations and administrative functions to an area outside the historic district. NPS mitigation procedures for the Warner Valley area would be outlined in a Programmatic Agreement with the California SHPO and ACHP and will be followed to address these impacts (see also Section 4.11, Mitigation Measures).
Visitor Experience		
Visitors continue to make this area of the park a destination regardless of the existing design and layout. Some visitors may see the slow decline in facilities as adverse. Therefore, the No Action Alternative would have a long-term, minor, adverse effect.	While the most dramatic change would be the removal of Dream Lake Dam, overall the changes in this alternative would be viewed as beneficial by most park visitors though considered adverse by long-time Drakesbad Guest Ranch visitors. During construction, Alternative 2 would have minor, short-term adverse impacts that would require temporary mitigation. Post-construction, Alternative 2 would result in long-term, moderate, beneficial and adverse impacts on visitor experience.	The reconstruction of Dream Lake Dam would ensure that recreation at Dream Lake would continue. This, in addition to the other upgrades to the facilities, would result in beneficial changes. Alternative 3 would have minor, short-term adverse impacts during construction, which would require temporary mitigation. Post-construction, Alternative 3 would result in long-term, minor, beneficial impacts on visitor experience.

TABLE 4-2 (Continued)
IMPACT COMPARISON TABLE

Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
Public Health and Safety		
Overall, the no-action alternative would have a minor, long-term, adverse impact.	Alternative 2 would result in a long-term, moderate, beneficial effect. However, some hazards on the road will continue. There would be short-term, negligible, adverse effects from construction activity, but this activity would not impact health and safety. Changes will make the area a more accessible place for those with limited mobility and safer for all.	Alternative 3 would result in a long-term, moderate, beneficial effect. There would be negligible, short-term, adverse effects from construction activity, but would not impact health and safety. Changes will make the area a more accessible place for those with limited mobility and safer for all.
Transportation		
The No-Action Alternative 1 would have a local, long-term, moderate, adverse effect. Continued operations in Warner Valley would cause local, long-term, moderate, adverse impacts to traffic flow and traffic safety conditions due to the unchanged alignment of Warner Valley Road and unchanged circulation patterns.	The Preferred Alternative 2 would have a short-term, minor to moderate, adverse effect, and a long-term, minor to moderate, beneficial effect. Alternative 2 would cause short-term, minor to moderate, adverse impacts (after mitigation) during site redevelopment; long-term, moderate, beneficial impacts to traffic flow conditions; and long-term, minor, beneficial effects on traffic safety/conflicts.	Alternative 3 would have a short-term, minor to moderate, adverse effect, and long-term, moderate, beneficial effect. Alternative 3 would cause short-term, minor to moderate, adverse impacts (after mitigation) during site redevelopment; and long-term, moderate, beneficial impacts to both traffic flow and traffic safety/conflicts.
Scenic Resources		
Alternative 1 would result in long-term, minor, adverse to existing conditions.	The proposed project will have a beneficial impact on Warner Valley's scenic resources. The removal of noncontributing features will preserve the historic viewshed of Drakesbad Guest Ranch and the view to Mount Harkness. The view of the night sky will continue to be relatively unobscured by external lighting. Consequently, the overall impact on scenic resource in Warner Valley is long-term, moderate, beneficial under Alternative 2.	The proposed project will have a beneficial impact on Warner Valley's scenic resources. The removal of noncontributing features will preserve the historic viewshed of Drakesbad Guest Ranch and the view to Mount Harkness. The view of the night sky will continue to be relatively un-obscured by external lighting. Consequently, the overall impact on scenic resource in Warner Valley is long-term, moderate, beneficial under Alternative 3
Operations and Facilities		
If no change occurs in the existing conditions of the park operations and facilities, adverse impact of both natural and cultural resources is likely to occur. The impact of this alternative on park operations and facilities would be primarily localized and the effect would not be considered severe. Over time, conditions would continue to be degraded. The no-action alternative would have a long-term, moderate, adverse effect.	Alternative 2 would have a long-term, moderate, beneficial effect. The impact of this alternative on park operations and facilities would be primarily localized and the effect would not be considered severe. Removal of trees and other construction-related impacts would result in short-term, moderate, adverse effects.	Alternative 3 would have an overall long-term, moderate, beneficial effect.

4.1 Geologic Resources and Hazards

Methodology

Geologic Resources

This analysis reviewed and compiled available information regarding the geologic resources in the Warner Valley area that could be adversely or beneficially impacted by the proposed actions. In Lassen Volcanic National Park, geologic resources can include soils, volcanic features, hot springs, areas underlain by peat, or other phenomena pertaining to volcanic activity. For the proposed project, soil compaction, soil loss, and resultant erosion effects have been identified as the primary impacts to geologic resources. The thresholds of change for the intensity of an impact are defined as follows:

Impact Intensity	Impact Description
Negligible	Geologic resources would not be affected or the effects to resources would be below or at the lower levels of detection. Any effects to geologic resources would be slight.
Minor	The effect on geologic resources would be detectable. Effects to resource areas would be small. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.
Moderate	The effect on geologic resources would be readily apparent and result in a change to the resource character over a relatively wide area. Mitigation measures would be necessary to offset adverse effects and likely be successful.
Major	The effect on geologic resources would be readily apparent and substantially change the character of the resource over a large area in and out of the park. Mitigation measures to offset adverse effects would be needed, extensive, and their success could not be guaranteed.

Duration:
Short-term – Impacts to the resource would last less than 3 years.
Long-term – Geologic resources would take more than 3 years to recover.

Type:
Beneficial – Effects that would preserve and protect geologic resources or would reduce features that impact geologic resources in the project area.
Adverse – Effects that would degrade or reduce geologic resources or would increase features that impact geologic resources in the project area.

Geologic Hazards

The impact analysis of geologic and seismic hazards is based on conclusions developed through review of known, potential geologic hazards that could exist in the Warner Valley area. Information was derived from review of existing literature, studies and information provided by staff at the National Park Service and other agencies, and from park staff insights and professional judgment. The thresholds of change for the intensity of an impact are defined as follows:

Impact Intensity	Impact Description
Negligible	The action would result in a changed vulnerability to geologic hazards, but the change would be so small that it would not be of any measurable or perceptible consequence.
Minor	The action would result in a changed vulnerability to geologic hazards, but the change would be small and localized and of little consequence.
Moderate	The action could result in a changed vulnerability to geologic hazards; the change would be measurable and of consequence.
Major	The action would result in a noticeable changed vulnerability to geologic hazards; the change would be measurable and result in a severely adverse or substantial beneficial impact.

Duration:
Short-term – There are no short-term geologic hazard impacts.
Long-term – All geologic hazards impacts would be long-term.

Type:
Beneficial – Effects that would preserve and protect geologic resources or would reduce features that impact geologic resources in the project area.
Adverse – Effects that would degrade or reduce geologic resources or would increase features that impact geologic resources in the project area

Analysis of Environmental Consequences – Alternative 1 (No Action)

Geologic Resources and Hazards

Analysis

Under Alternative 1, erosion and compaction by human traffic and vehicles would continue to adversely affect soil resources in traveled areas. Areas of impact could include the campground with the current level of human traffic and the unprotected dirt slopes and uncontrolled parking areas that encroach on natural areas. The loss of peat soils in Drakesbad Meadow through oxidation caused by lowered water levels and/or human foot traffic would remain a potential impact. Impacts associated with earthquake ground shaking or seismic-induced soil failure were not identified.

Cumulative Impacts

Cumulative effects are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Past, present, and future actions influencing the natural geologic/soil conditions in Warner Valley include increased visitor throughout the years, the existing level of landscape and road maintenance, and future development or expansion of Warner Valley facilities.

Conclusion

Alternative 1 would result in a local, long-term, minor, adverse impact because it results in continued soil compaction, soil loss, and degradation of peat soils in the meadow. Under this

alternative, conditions that are detrimental to soil resources would not be adequately addressed or corrected.

Impairment: Under Alternative 1 the changes which would occur in geologic resources would not rise to the level of impairment, and there would be no change to the natural and physical integrity of the park. Neither would there be effects to the resource values highlighted in the 2002 General Management Plan, therefore there would be no impairment of geologic resources or values from the actions in Alternative 1.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Geologic Resources and Hazards

Analysis

Under Alternative 2, areas of erosion, soil loss, and soil compaction would be reconditioned and vegetated or closed to human and vehicular traffic. For instance, replacement of the road to the ranger station water tank would correct the current erosion condition while relocation of the lower campground would reduce soil loss by human traffic to Hot Springs Creek. Parking throughout Warner Valley would be improved to avoid vehicular impacts to natural areas. Trails would be improved with boardwalks to reduce impacts to sensitive meadow soils. Restoring Drakesbad Meadow would improve the health and function of the fen and protect the unique peat/hydric soil. The removal of Dream Lake Dam would eliminate an area containing problematic, unengineered soils.

Cumulative Impacts

Cumulative effects are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Table 4-1 provides a list of projects occurring in the past, present and future of Warner Valley. Past, present and future actions that improve, preserve and protect soil resources in Warner Valley include general road maintenance and smaller scale restoration projects that have been implemented in the past, are underway today, or are proposed for the future.

Conclusion

Alternative 2 would have an overall moderate, long-term beneficial impact because it reverses damaging effects of erosion, soil compaction, and soil loss.

Impairment: Under Alternative 2 the changes which would occur to geologic resources would not result in impairment, and there would be no change to the natural and physical integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan, therefore there would be no impairment of geologic resources or values from the actions in Alternative 2.

Analysis of Environmental Consequences – Alternative 3

Geologic Resources and Hazards

Analysis

Alternative 3 is similar to Alternative 2 in that existing areas that are susceptible to erosion and soil loss would be addressed and corrected. Considering soil impacts and remedies, there is not a sizeable difference between in the two alternatives. Reconstruction of the Dream Lake Dam would improve an area that currently contains problematic, unengineered soil.

Cumulative Impacts

Cumulative effects are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Table 4-1 provides a list of projects occurring in the past, present and future of Warner Valley. Past, present, and future actions that improve, preserve, and protect the soil resources in Warner Valley include smaller scale restoration projects and general road maintenance.

Conclusion

Alternative 3 would have an overall moderate, long-term, beneficial impact because it corrects adverse effects of soil compaction and soil loss.

Impairment: Under Alternative 3 the changes which would occur to geologic resources would not result in impairment, and there would be no change to the natural and physical integrity of the park, nor effects to the resource value highlighted in the 2002 General Management Plan, therefore there would be no impairment of geologic resources or values from the actions in Alternative 3.

4.2 Hydrology and Water Quality

Methodology

Hydrology

Hydrology refers to hydrologic surface water processes such as surface water runoff, stream flooding, erosion and deposition, and channel movement. Hydrogeology refers to the movement of groundwater through subsurface geologic strata. Particular attention is given to alterations or restoration of water flow (e.g., diversions, impediments to flow, or release of spring flow) and placement or removal of facilities in Warner Valley that are subject to inundation or potential damage by flooding. The National Park Service *Freshwater Resource Management Guidelines* (found in NPS-77) requires the National Park Service (NPS) to "maintain, rehabilitate, and perpetuate the inherent integrity of water resources and aquatic ecosystems."

Impact Intensity	Impact Description
Negligible	There would be no change in the natural surface or groundwater flow rates or patterns. Project would not affect flood flow patterns.
Minor	Changes to the natural surface or groundwater flow rates, or patterns would be measurable and local. The project would remove or add structures subject to inundation by flooding, but damage associated with flooding is unlikely and flood flow velocity or patterns would not change. No mitigation would be needed.
Moderate	Changes in natural surface or groundwater flow or patterns would be measurable and local. Project would remove or add structures subject to inundation and damage by flooding, but would not change flood flow velocity or alter the pathway of flood flows.
Major	Changes in natural surface or groundwater flow or patterns would be measurable and widespread. Project would contribute to changes in flood flow velocity or alter the pathway of flood flows.

Duration:
Short-term – Usually less than one year. Impacts would not be measurable or measurable only during the life of construction.
Long-term – Usually more than one year. Impacts would be measurable during and after project construction.

Type:
Beneficial – Effects that would improve natural surface or groundwater flow or patterns or would reduce features that impede natural surface or groundwater flow or patterns in the project area.
Adverse – Effects that would degrade or reduce natural surface or groundwater flow or patterns or would increase features that impede natural surface or groundwater flow or patterns in the project area.

Water Quality

The National Park Service *Management Policies 2006* state that the Park Service will "take all necessary actions to maintain or restore the quality of surface waters and groundwater within the parks consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations."

A water quality standard defines the water quality goals of a waterbody by designating uses to be made of the water, by setting minimum criteria to protect the uses, and by preventing degradation of water quality through antidegradation provisions. The antidegradation policy is only one portion of a water quality standard. Part of this policy (40 Code of Federal Regulations [CFR] 131.12(a)(2)) strives to maintain water quality at existing levels if it is already better than the minimum criteria. Antidegradation should not be interpreted to mean that "no degradation" can or will occur, as even in the most pristine waters, degradation may be allowed for certain pollutants as long as it is temporary and short-term.

Other considerations in assessing the magnitude of water quality impacts are the effect on those resources dependent on a certain quality or condition of water. Sensitive aquatic organisms, submerged aquatic vegetation, riparian areas, and wetlands are affected by changes in water quality from direct and indirect sources.

Given the above water quality issues and methodology and assumptions, the following impact thresholds were established in order to describe the relative changes in water quality under the alternatives.

Impact intensity	Impact Description
Negligible	Impacts (chemical, physical, or biological effects) would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.
Minor	Impacts (chemical, physical, or biological effects) would be detectable but would be well below water quality standards or criteria and within historical or desired water quality conditions.
Moderate	Impacts (chemical, physical, or biological effects) would be detectable but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be temporally altered.
Major	Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would temporarily be slightly and singularly exceeded.

Duration:
Short-term – Following treatment, recovery would take less than one year.
Long-term – Following treatment, recovery would take longer than one year.

Type:
Beneficial – Effects that would improve water quality or would reduce features that impede water quality in the project area.
Adverse – Effects that would degrade or reduce water quality or would increase features that impede water quality in the project area

Analysis of Environmental Consequences – Alternative 1 (No Action)

Erosion, Impeded Surface Water Flow, and Water Quality

Analysis

Under Alternative 1, current areas in Warner Valley that create erosion, impede surface water flow, and/or degrade water quality through sedimentation or release of foreign contaminants, would remain unimproved. The placement of the fee station and the road to the water tank at the ranger station would remain and continue to impede surface drainage and result in sediment delivery to local water bodies. The current maintenance issues would remain for the entry road; specifically, the potential for slope instability, blocking of drainage into creeks, and inadequate drainage. The campground would remain in its current location and human traffic and the unprotected, dirt slopes would continue to cause erosion that could eventually lead to increased sediment delivery to Hot Springs Creek. Unstable banks along Hot Springs Creek would remain in current conditions with armor consisting of cobble/rock-filled gabion mesh baskets at the Drakesbad Guest Ranch pool. At Drakesbad Guest Ranch, the edge creep in the parking area and roads would continue to create large impacted areas and unclear traffic zones and road base used on roads and trails would continue to obstruct natural water flow to the meadow and fen. The impermeable trail/road to the pool and bathhouse would continue to create and obstruction to surface water flow. In addition, the major trail leading from the corral to the trail network on the south side of the meadow would remain constructed of compacted gravel creating an obstruction to surface water flow through the meadow/ fen complex. The present location of the corral would remain and effluent from the corral would continue to flow into Drakesbad Meadow, creating a potential for surface water degradation. Based on the severity of the current erosion, hydrology and water conditions at the identified locations, Alternative 1 (No-Action) would result in continued soil erosion, man-made impediments to surface water flow, and threats to water quality in the creeks and the meadow.

Drakesbad Meadow

Analysis

Alternative 1 would not alter the current hydrologic regime in Drakesbad Meadow. The footpaths, water tank road, and ditches have changed the meadow and fen from its original, natural hydrologic condition by draining surface water and impeding or altering surface water flow to and across the meadow. Over the long term under Alternative 1, surface water flow and shallow groundwater levels could continue to decrease resulting in further alteration of the meadow environs. However, the changes to the meadow and fen as a result of continued human activity would be gradual. Although the NPS has implemented some measures to improve the flow into and across the meadow, Alternative 1 would not fully protect and preserve the hydrologic character of the meadow or fen into the future. Activities surrounding the meadow (i.e. lodging, vehicle parking and the horse corral) would continue to threaten surface water quality.

Dream Lake Dam

Analysis

Under Alternative 1, Dream Lake Dam would remain in its current condition and not be repaired, replaced, or removed. The NPS would continue to discourage the population of beavers from altering the flow on the spill way and minor repairs may be completed by hand only (no heavy equipment work) after large rain storms or snow events. The dam would continue to be in a weakened state with a risk of failure. Because of its size and the volume of water it contains, failure of the dam would cause localized, manageable flooding, which is not expected to cause injury to park staff and visitors or damage to structures. Under this alternative, the dam would remain as a man-made restriction to the natural surface water flow and the overall hydrologic system that includes tributaries that feed into Hot Springs Creek.

Alternative 1 does present the possibility that, some time in the future, the dam could fail naturally without human intervention. Complete catastrophic collapse of the entire dam face is less probable. However, it is likely that the berm would fail at one or more V-shaped breaches that would gradually enlarge as the water flowed through the berm. Flood waters would probably flow downstream at a near consistent rate until the lake is drained. Considering the volume and depth of the water behind the dam, it is likely that Hot Springs Creek could accommodate the flood flows, although some water could reach the meadow.

Alternative 1 would not alter the dam from its original condition and therefore, it would remain as a man-made impediment to natural surface water flows and a failure risk. Failure of the dam would cause localized flooding and temporary increased sedimentation, but would not cause injury or damage to structures. However, if the dam failed without human intervention at some time in the future, failure and subsequent restoration would remove an impediment to natural surface water flow, provide additional flows to Hot Springs Creek and the meadow, and improve water quality.

Cumulative Impacts

Cumulative effects are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Past, present and future actions influencing the natural hydrologic regime and water quality in Warner Valley include the meadow draining activities and livestock grazing in the early years, increased visitor use throughout the years, the construction of the Dream Lake Dam, periodic trail work and the boardwalk construction, the existing level of landscape and road maintenance, and future development or expansion of Warner Valley facilities.

Conclusion

Alternative 1 would have an overall long-term, moderate, adverse impact because it results in 1) continued soil erosion, 2) altered natural surface water flow paths, and 3) water quality impacts. Under this alternative, conditions that are detrimental to the natural hydrologic regime and natural water quality would not be addressed or corrected.

Impairment: Under Alternative 1 the changes which would occur to hydrologic resources would not result in impairment, and there would be no change to the natural integrity of the park due to changes in hydrology, nor effects to the resource values highlighted in the 2002 General Management Plan, therefore there would be no impairment of hydrologic resources or values from the actions in Alternative 1.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Erosion, Impeded Surface Water Flow, and Water Quality

Analysis

Under Alternative 2, many of the existing erosion areas, impediments to surface flows, and conditions leading to degradation of water quality would be corrected. At the entry of Warner Valley, the fee station would be relocated away from the natural drainage way. Replacement of the road to the ranger station water tank would correct the current erosion condition. Impediments to drainage would be corrected throughout valley entry area by efforts to replace undersized and failing culverts and construct headwalls. Erosion and potential water quality issues would be reduced, if not eliminated, by closing the lower campground. Parking throughout Warner Valley would be improved to avoid vehicular impacts to natural areas. Surface water flow to the fen would be improved by reconfiguring the water tank road. Trails would be improved with boardwalks and new base material to improve infiltration, remove impediments to surface flows, and reduce erosion. Eroding stream banks near the pool would be stabilized to reduce erosion and improve water quality. Given the many improvements prescribed by the project, Alternative 2 would result in reduced soil erosion, elimination of man-made impediments to surface water flow, and improved water quality in the creeks and the meadow.

Drakesbad Meadow

Analysis

Alternative 2 would implement recommendations provided to the NPS through the hydrologic characterization and restoration study completed by Lindsay Patterson and Colorado State University (Patterson, 2005). The most significant improvement would be the filling of man made ditches throughout the meadow and other improvements to increase surface water flow to the meadow from the upland springs. Backfilling the ditches is a long-term restoration strategy, which would initiate more flow across the meadow. Under Alternative 2, the NPS would continue implementing measures to improve the flow into and across the meadow. Improvements to the meadow, coupled with other local actions under Alternative 2 would further enhance water quality and quantity in the meadow and fen.

Dream Lake Dam

Analysis

Under Alternative 2, the dam at Dream Lake would be removed, the surrounding area graded, and the borrow pit adjacent to the dam would be backfilled. A construction project of this magnitude would result in short-term adverse effects to soils (erosion), hydrology (impeded flows), and water quality (sedimentation and erosion) due to the amount of materials and equipment required. Short-term impacts include soil erosion and sedimentation to creeks. Strategies to avoid sensitive hydrologic and soil resources would be developed by the NPS and could include the requirement that work be performed during the winter snow season to reduce ground surface impacts. Necessary restoration would be performed in the immediate area to ensure that the four tributaries currently feeding Dream Lake would converge and flow towards Hot Springs Creek and Drakesbad Meadow in much the same way as they did prior to dam construction. Alternative 2 would restore the natural, pre-development hydrologic regime. Removal of the dam and restoration of the tributaries would enhance flows downstream to Hot Springs Creek and possibly to Drakesbad Meadow and the fen, especially in periods of high flow. Removal of the dam would not increase flooding hazard in Warner Valley because Hot Springs Creek possesses the capacity to accommodate flows that would have otherwise been detained behind the dam. By removing the dam, Alternative 2 would restore flows and preserve a major component of the natural hydrologic system in Warner Valley.

Cumulative Impacts

Cumulative effects are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Past, present and future actions that improve, preserve and protect the hydrologic regime in Warner Valley, recent efforts by the NPS to return flows to Drakesbad Meadow and other smaller scale restoration projects that were implemented in the past, that are underway today, or are proposed for the future.

Conclusion

Alternative 2 would have an overall long-term, moderate, beneficial impact because it reverses damaging effects of erosion, enhances surface water flow, improves water quality by reducing sedimentation, and removes Dream Lake Dam, a major impediment to surface water flow and a major contributor to the hydrologic regime.

Impairment: Under Alternative 2 the changes in hydrologic resources which would occur do not rise to the level of impairment and there would be no change to the hydrologic integrity and water quality of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of hydrologic resources or values from the actions in Alternative 2.

Analysis of Environmental Consequences – Alternative 3

Erosion, Impeded Surface Water Flow, and Water Quality

Analysis

Alternative 3 is similar to Alternative 2 in that many of the existing erosion areas, impediments to surface flows, and conditions leading to degradation of water quality would be corrected under each alternative. However, from the perspective of erosion, surface water flow, and water quality, Alternative 3 includes flow impediment at Dream Lake, while Alternative 2 removes the Dream Lake Dam.

Given the many improvements to adverse erosion, surface flow, and potential water quality conditions throughout the project area, Alternative 3 would result in reduced soil erosion, elimination of man-made impediments to surface water flow, and improved water quality in the creeks and the meadow.

Drakesbad Meadow

Analysis

Similar to Alternative 2, Alternative 3 would implement recommendations provided to the NPS through the hydrologic characterization and restoration study completed by Lindsay Patterson and Colorado State University (Patterson, 2005). The most significant difference is that Alternative 3 would use sheet metal dams in the existing ditches to impede flow from the meadow rather than filling the ditches. Although this may be an effective solution to reducing water drainage from the meadow, it would be less effective than filling the ditches, as proposed in Alternative 2. Filling the ditches can be considered a long-term restoration approach because it reestablishes surface flow across the path of the ditch thus restoring sheet flow across the meadow. The use of sheet metal dam would be more appropriate if used during pilot restoration projects to determine the interaction of surface flow on the meadow floor and in the ditches. Under Alternative 3, the NPS would continue implementing measures to improve the flow into and across the meadow. Improvements to the meadow, coupled with other local actions under Alternative 3 would further enhance water quality and quantity in the meadow and fen.

Alternative 3 proposes the use of sheet metal dams to reduce flow through exiting drainage ditches in the meadow. This is a less effective, shorter-term solution than filling the ditches as proposed in Alternative 2. Because of this, long-term effects of restoration on the meadow may not be realized as readily under Alternative 3 as they would under Alternative 2.

Dream Lake Dam

Analysis

Under Alternative 3, the dam at Dream Lake would be repaired and would be higher than the existing dam. A construction project of this magnitude would result in short-term adverse effects

to soils (erosion), hydrology (impeded flows), and water quality (sedimentation and erosion) due to the amount of materials and equipment required. Short-term impacts include soil erosion and sedimentation to creeks. Strategies to avoid sensitive hydrologic and soil resources would be developed by the NPS and could include the requirement that work be performed during the winter snow season to reduce ground surface impacts. Alterative 3 would not remove the dam and therefore, a major impediment to the restoration of the natural hydrologic regime of Warner Valley would remain.

Alternative 3 would reconstruct Dream Lake Dam. From a hydrologic and water quality perspective, Alternative 3 does not restore or preserve the natural character or hydrologic system in Warner Valley. In addition, such a construction project could degrade water quality and trigger soil erosion.

Cumulative Impacts

Cumulative effects are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Past, present and future actions that improve, preserve, and protect the hydrologic regime and systems in Warner Valley include recent efforts by the NPS to return flows to Drakesbad Meadow and other smaller scale restoration projects that were implemented in the past, are underway today, or are proposed for the future.

Conclusion

Alternative 3 would have an overall long-term, moderate, beneficial impact because it corrects many of the adverse effects of erosion, it enhances surface water flow, and it improves water quality by reducing sedimentation.

Impairment: Under Alternative 3 the changes in hydrologic resources which would occur would not result in impairment and there would be no change to the hydrologic integrity and water quality of the park, nor effects to the hydrologic resource values highlighted in the 2002 General Management Plan. Therefore, there would be no impairment of hydrologic resources or values from the actions in Alternative 3.

References

Patterson, L. and D.J. Cooper, 2005. *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California,* Colorado State University, Graduate Thesis.

4.3 Vegetation, Wetlands, Wildlife, and Special-status Species

Methodology

Vegetation

Available information on vegetation and vegetative communities potentially impacted at the project site was compiled. Predictions about short- and long-term site impacts were based on previous projects with similar vegetation and recent studies. The thresholds of change for the intensity of an impact are defined as follows:

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

Duration:
Short-term – Recovers in less than three growing seasons.
Long-term – Takes more than three growing seasons to recover.

Type:
Beneficial – Effects that would improve and enhance the conditions and/ or extent of vegetation within the project area.
Adverse – Effects that would degrade the condition and/or or reduce the extent of vegetation within the project area.

Wetlands

Wetlands are "lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface" (Cowardin, 1979). Executive Order 11990 ("Protection of Wetlands") requires an examination of impacts to wetlands; and protecting wetlands. The National Park Service has adopted a "no net loss" of wetlands. The planning team based the impact analysis and the conclusions for possible impacts on wetlands on the on-site inspection of known and potential jurisdictional wetlands within the park, review of existing literature and studies, information provided by experts in the National Park Service and other agencies, and park staff insights and

professional judgment. The thresholds of change for the intensity of an impact are defined as follows:

Impact Intensity	Impact Description
Negligible	Wetlands would not be affected or the effects would be below or at the lower levels of detection.
Minor	The effects to wetlands would be detectable and relatively small in terms of area and the nature of the change. The action would affect a limited number of individuals of plant or wildlife species within the wetland.
Moderate	The effects to wetlands would be readily apparent over a relatively small area but the impact could be mitigated by restoring previously degraded wetlands. The action would have a measurable effect on plant or wildlife species within the wetland, but all species would remain indefinitely viable.
Major	The effects to wetlands would be readily apparent over a relatively large area. The action would have measurable consequences for the wetland area that could not be mitigated. Wetland species would be at risk of extirpation from the area.

Duration:
Short-term – Recovers in less than three years.
Long-term – Takes more than three years to recover.

Type:
Beneficial – Effects that would improve and enhance the conditions and/ or extent of wetlands within the project area.
Adverse – Effects that would degrade the condition and/or or reduce the extent of wetlands within the project area.

Wildlife

The National Park Service Organic Act, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the agency to mean that native animal life should be protected and perpetuated as part of the park's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible; otherwise they are protected from harvest, harassment, or harm by human activities. According to National Park Service *Management Policies 2006*, the restoration of native species is a high priority. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and the ecological integrity of plants and animals. Information on wildlife was taken from park documents and records. Park natural resource management staff also provided wildlife information.

Impact intensity	Impact Description
Negligible	There would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them. Impacts would be well within natural fluctuations.
Minor	Impacts would be detectable, but they would not be expected to be outside the natural range of variability of native species' populations, their habitats, or the natural processes sustaining them. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Impact intensity	Impact Description
Moderate	Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or juvenile stages; mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in the parks unit. Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability. Key ecosystem processes might be disrupted. Loss of habitat might affect the viability of at least some native species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Duration:
Short-term – Recovers in one year or less.
Long-term – Takes more than one year to recover.

Type:
Beneficial – Effects that would improve and enhance the distribution and/ or population numbers of wildlife species within the project area.
Adverse – Effects that would reduce the distribution and/ or population numbers of wildlife species within the project area.

Special-status Species

The Endangered Species Act (16 USC 1531 et seq.) mandates that all federal agencies consider the potential effects of their actions on species listed as threatened or endangered. If the National Park Service determines that an action may adversely affect a federally listed species, consultation with the U.S. Fish and Wildlife Service is required to ensure that the action will not jeopardize the species' continued existence or result in the destruction or adverse modification of critical habitat. National Park Service *Management Policies 2006* state that potential effects of agency actions will also be considered on state or locally listed species. The National Park Service is required to control access to critical habitat of such species, and to perpetuate the natural distribution and abundance of these species and the ecosystems upon which they depend. Information on possible threatened, endangered, candidate species and species of special concern was gathered from the National Park Service and U.S. Fish and Wildlife Service. The thresholds of change for the intensity of an impact are defined as follows:

Impact Intensity	Impact Description
Negligible	The action could result in a change to a population or individuals of a species or designated critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence.
Minor	The action could result in a change to a population or individuals of a species or designated critical habitat. The change would be measurable but small and localized and of little consequence. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	The action would result in some change to a population or individuals of a species or designated critical habitat. The change would be detectable and could be outside the natural range of variability. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.

Impact Intensity	Impact Description
Major	The action would result in a substantial change to a population or individuals of a species or designated critical habitat. Impacts would be expected to be outside the natural range of variability and might affect the viability of at least some special-status species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Duration:
Short-term – Recovers in less than 1 year for animals and within 1 growing season for plants.
Long-term – Takes more than 1 year to recover for animals and more than 1 growing season for plants.

Type:
Beneficial – Effects that would improve and enhance the distribution and/ or population numbers of special status-species within the project area.
Adverse – Effects that would reduce the distribution and/ or population numbers of special status-species within the project area.

Analysis of Environmental Consequences – Alternative 1 (No Action)

Alternative 1 proposes no action, which assumes that no substantive changes will be made to the area. Under this alternative, the existing fee station would remain unchanged and the campground would be maintained in its present location and condition. Small scale features would remain in their present locations and conditions, as would the bathhouse, pool, and circulation facilities.

Vegetation

Analysis

Under the no action alternative facilities would remain basically unchanged in Warner Valley. The ranger station water tank road would remain in place and the entry road and campground would remain unchanged. Currently dust from the entry road and campground affects vegetation in close proximity to these areas. Poorly situated facilities and trail connections encourage “social trails” that have adverse impacts on vegetation. Poorly delineated parking areas and trails degrade vegetation locally as well. Proximity of the horse corral to Drakesbad Meadow facilitates the spread of exotic vegetation in this unique ecosystem.

Cumulative Impacts

Cumulative impacts to vegetation resources are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, development of the resort, and draining of the meadow, have resulted in long-term moderate degradation of vegetative resources in Warner Valley. Under Alternative 1, localized minor adverse effects on vegetation would continue in developed areas throughout Warner Valley, along trails, in and around campgrounds, and in and around existing facilities at Drakesbad Guest Ranch. In the future, fire management activities such as prescribed burns and mechanical thinning projects would occur.

Conclusion

Under Alternative 1, ongoing impacts to vegetation would result in local, long-term, minor, adverse effects. However, these impacts would be primarily localized and, while individual trees or small areas of vegetation might be removed or otherwise degraded, the effect would not be considered severe within the context of vegetative resources throughout Warner Valley.

Impairment: Under Alternative 1, the changes which would occur to vegetation resources would not rise to the level of impairment. There would be no change to the natural integrity of the park, nor effects to the vegetation resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of vegetative resources or values from under Alternative 1.

Wetlands

Analysis

Multiple existing impacts on wetland resources in Warner Valley would continue under Alternative 1. The trails crossing Drakesbad Meadow would continue to block water flow through that complex fen/wet meadow ecosystem, undersized culverts along Warner Valley Road would continue to cause headcutting and erosion in the small streams crossing the road, the location of the trailhead parking lot within a wetland would remain unchanged, and Dream Lake Dam, which has significantly altered local hydrology on the south slopes of Warner Valley would remain in place. Drakesbad Meadow and its fen hydrology have been studied (Patterson, 2005) and some preliminary actions to restore hydrology to this area have already been implemented. However, further actions are needed to more fully restore the functions and values of this unique natural resource.

Cumulative Impacts

Cumulative impacts on wetlands are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, resort development, road and dam building, and draining of Drakesbad Meadow, have resulted in long-term major degradation of wetland resources in Warner Valley.

Conclusion

Under Alternative 1, ongoing impacts to wetlands would result in local, long-term, minor to moderate, adverse effects. While these impacts would be primarily localized, they would be spread throughout Warner Valley and their combined effects would continue to impact wetland resources and values.

Impairment: Under Alternative 1, the changes in wetland resources would not rise to the level of impairment. There would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of wetland resources or values under Alternative 1.

Wildlife

Analysis

Numerous wildlife species inhabit the Warner Valley area. The wildlife assemblage present likely varies on a seasonal basis. Those that are most common in the forests and meadows adjacent to developed areas during the summer months when visitation is highest would generally be species that are tolerant of, if not habituated to, human presence and activity. For example, black bears, marmots, chipmunks, squirrels, and jays are attracted to food sources provided by the human activity in the campground and at Drakesbad Guest Ranch. Winter may see less tolerant species present within the developed areas but these species likely retreat to areas less frequented by humans during the summer. The long standing development of Warner Valley has resulted in localized degradation of wildlife habitat.

Cumulative Impacts

Cumulative impacts on wildlife are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, resort development, road and dam building, and draining of Drakesbad Meadow, have resulted in local, long-term, minor to moderate effects on wildlife resources in Warner Valley, primarily through degradation of habitat.

Conclusion

Under Alternative 1, short-term, minor, adverse effects upon wildlife would continue. However, these impacts would be primarily localized and, while individual animals might occasionally be killed on the road or suffer reproductive failure due to human disturbance, this would be within the natural range of variability of native species' populations and the effect would not be considered severe within the context of wildlife resources throughout Warner Valley.

Impairment: Under Alternative 1, the impacts to wildlife species would not rise to the level of impairment, and there would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan, therefore Alternative 1 would not impair the park's wildlife resources.

Special-status Species

Analysis

Thirty-seven special-status species were determined to have potential to occur within Warner Valley, 15 animals and 22 plant species. A number of bird species, such as spotted owl, greater sandhill crane, willow flycatcher, yellow warbler, and rufous hummingbird are known from Warner Valley. Distribution of special-status bats within the Park is not well known and there is a moderate potential for several species, including silver-haired bat, fringed myotis, and Yuma myotis, to occur in the forests within and adjacent to developed areas. Otherwise, special-status wildlife are generally not expected to occur within developed areas of Warner Valley due to the relatively high levels of habitat disturbance and human use. Since facilities would remain the

same under Alternative 1 only negligible to minor adverse effects to special-status wildlife are expected. For the most part special-status plants are not likely to be found in developed areas either. However, most of these plants are found in wetlands, wet meadows, or along creeks and if present near trails, roads and other existing facilities, may be subject to local, minor, adverse effects resulting from human caused erosion and trampling, displacement by invasive exotic species, and alteration of wetland hydrology in Drakesbad Meadow, along the main access road and the two water tanks access roads.

Cumulative Impacts

Cumulative impacts on special-status species are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, resort development, road and dam building, and draining of Drakesbad Meadow, have undoubtedly resulted in local, long-term, moderate adverse effects on special-status plants and wildlife in Warner Valley, primarily through degradation of habitat. For example, with the advent of human uses in the Warner Valley, wildlife species sensitive to human presence undoubtedly moved out of the area. Although the original vegetative composition of Drakesbad Meadow is unknown it possible that alteration of meadow and fen hydrology resulted in extirpation of certain plant species.

Conclusion

Under Alternative 1, ongoing impacts to special-status species would result in local, long-term, minor, adverse effects. These impacts would be localized and would not jeopardize the continued existence of any species or result in the destruction or adverse modification of critical habitat for any species.

Impairment: Under Alternative, the impacts to special status species would not rise to the level of impairment. There would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan, therefore Alternative 1 would not impair the park's special-status wildlife or plant populations.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Alternative 2 would relocate the fee station to a new area west of the historic Ranger Station, complete circulation improvements to parking and pull-out areas near the new fee station, construct a new service road and improve the existing Warner Valley Road, as well as convert the existing lower campground to day use parking. The existing day use parking area would be closed. Various campground improvement projects are proposed for the upper campground. Within Drakesbad Guest Ranch, employee housing and parking would be relocated and combined with added facilities. The current bathhouse would be slightly expanded and renovated. When existing facilities are closed and relocated, such as the fee station and the day use parking area, the areas will be restored to natural conditions. Also under this alternative, Drakesbad Meadow hydrology would be enhanced and restored, through the filling of man-made ditches and

replacement of existing trails across the meadow with boardwalks or permeable surfaces. Under this Alternative, Dream Lake dam would be removed and the historic stream channels, now inundated by the lake, as well as the dam borrow pit, would be restored to natural conditions.

Vegetation

Analysis

Implementation of the preferred alternative would result in the removal of trees, most of these in association with the Dream Lake Dam removal and several in association with relocation of existing facilities. Alternative 2 would also result in removal of existing vegetation in association with construction of the new concessioner housing and service center and the utility lines to serve them, as well as new trails, campground spaces, and access roads. These would be considered local, minor, adverse effects on vegetation. However, under the preferred alternative many of the facilities and land uses that are currently resulting in minor adverse impacts on vegetation would be addressed. Dust from the entry road would be controlled through the installation of new aggregate and application of environmentally approved dust suppressants. Relocating facilities and improving trail connections would reduce the incidence of “social trails” that have adverse impacts on vegetation. Establishing clearly delineated parking areas would also reduce adverse effects on surrounding vegetation. The horse corral would remain in its current location but use of the lower corral would be discontinued and a bio-filtration system would be added to mitigate the effects of effluent on natural habitat “downstream” of the corral. Closure of the existing day use parking area and relocation of employees housing and minor facilities would be followed by restoration of currently degraded areas to a natural condition. These are each considered local, minor to moderate beneficial effects on vegetation. Therefore, implementation of Alternative 2 would result in a net beneficial effect on vegetation and would not result in a long-term impact on vegetative resources within the Warner Valley.

Cumulative Impacts

Cumulative impacts to vegetation resources are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, development of the resort, and draining of the meadow, have resulted in long-term moderate degradation of vegetative resources in Warner Valley. Under Alternative 2 adverse effects on vegetation occur in conjunction with construction of new facilities, trails and roads. However, many of the proposed actions under Alternative 2 are intended to address existing sources of degradation by moving facilities away from sensitive habitat and active restoration of multiple areas that are currently degraded. In the future, fire management activities such as prescribed burns and mechanical thinning projects would occur.

Conclusion

Several activities associated with Alternative 2 would result in long-term, minor, adverse effects on vegetation. However, these impacts would be primarily localized and, while individual trees or small areas of vegetation might be removed or otherwise degraded, the effect would not be considered severe within the context of vegetative resources throughout Warner Valley.

Additionally, many of the activities themselves are intended to ameliorate and repair existing degradation of vegetative resources. Restoration of currently degraded areas to a natural condition will be achieved using native stock. Therefore, the net effects of Alternative 2 should be a long-term, minor to moderate beneficial effect on vegetative resources and values.

Impairment: Under Alternative 2 the changes to vegetation resources that would occur do not rise to the level of impairment and there would be no change to the natural integrity of the park's plant communities, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of vegetation resources or values from the actions in Alternative 2.

Wetlands

Analysis

The proposed actions under the preferred alternative have been designed to avoid and minimize potential impacts to wetlands. Replacement of culverts along Warner Valley Road would result in temporary, short-term adverse impacts to wetlands and riparian vegetation where they are present in the streams near the road. However, multiple existing impacts on wetland resources in Warner Valley would be addressed under Alternative 2. The existing water tank access road near the ranger station would be relocated out of a drainage. The undersized culverts along Warner Valley Road would be replaced and headcutting and erosion in the small streams crossing the road would be repaired and restored to a natural state. The day use parking area would be relocated and the wetland that it impinges on would be restored. Drakesbad Meadow and its fen hydrology have been studied (Patterson, 2005) and based on the recommendations of the study, some preliminary actions to restore hydrology to this area have already been implemented. However, further actions are needed to more fully restore the functions and values of this unique natural resource. Under the preferred alternative, Drakesbad Meadow surface hydrology would be restored and enhanced through several actions: trails crossing the meadow would be replaced with boardwalks or rebuilt using permeable beds; the existing drainage ditches constructed to dewater portions of the meadow would be filled; and the existing water tank road at the western end of Drakesbad Meadow would be rebuilt with a permeable road bed and narrower width to enhance water flow to the meadow and fen below. The existing culverts that have been placed in this road would also be maintained. The eroding banks of Hot Springs Creek in the vicinity of the pool and bathhouse would be stabilized using native vegetation. Dream Lake Dam, which has significantly altered local hydrology on the south slopes of Warner Valley would be removed and the historic stream channels that currently feed the lake would be restored. This could potentially result in a significant increase in riparian and wetland habitat in that area. The overall net effect on wetland resources would be to reduce existing sources of impact to wetland resources within Warner Valley.

Cumulative Impacts

Cumulative impacts on wetlands are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, resort development, road and dam building, and

draining of Drakesbad Meadow, have resulted in long-term major degradation of wetland resources in Warner Valley. While implementation of the preferred alternative would result in minor adverse effects on wetlands, it would also result in numerous beneficial impacts on wetlands through addressing many of the existing sources of degradation as well as through direct restoration of wetland hydrology and vegetation.

Conclusion

Implementation of the preferred alternative would result in short-term, minor adverse effects on wetlands. However, the preferred alternative would also result in long-term, moderate, beneficial effects on wetlands throughout Warner Valley. There would be a net gain in wetland resources, functions, and values resulting from the preferred alternative and project implementation would serve to substantially reduce the existing impact of wetland resources in the Warner Valley.

Impairment: Under Alternative 2 the changes to wetland resources which would occur do not rise to the level of impairment and there would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of wetland resources or values from the actions in Alternative 2.

Wildlife

Analysis

The long standing development of Warner Valley has resulted in localized degradation of wildlife habitat but a diversity of wildlife species still inhabit the area. Wildlife present within the immediate vicinity of most of the proposed activities are habituated to human activity and adverse effects on these animals as a result of the activities proposed under Alternative 2 are generally expected to be negligible. Removal of Dream Lake Dam could be expected to have a local, short-term effect on the beaver, bufflehead, and other species that inhabit the lake. However, other suitable nearby habitat is present in Hot Springs Creek, upstream from Dream Lake Dam, and in other nearby lakes. Therefore, effects on the local wildlife populations would be minor.

Work in and around particularly sensitive habitat for wildlife, such as the willow and alder riparian thickets along Hot Springs Creek and in Drakesbad Meadow would be timed to avoid nesting and dispersal periods for riparian associated birds or only conducted after surveys prove these species to be absent. Implementation of Alternative 2 will, therefore, not threaten the continued existence of any wildlife species. Under Alternative 2 localized, minor, adverse effects on wildlife would continue in developed areas throughout Warner Valley, along trails, in and around campgrounds, and in and around existing and proposed facilities at Drakesbad Guest Ranch. Restoration and enhancement of habitat in the meadow/fen complex and in currently degraded areas that are to be decommissioned would result in long-term, beneficial impacts on wildlife.

Cumulative Impacts

Cumulative impacts on wildlife are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, resort development, road and dam building, and draining of Drakesbad Meadow, have resulted in local, long-term, minor to moderate effects on wildlife resources in Warner Valley, primarily through degradation of habitat.

Conclusion

Under Alternative 2 impacts to wildlife could result from construction of new facilities and other proposed activities and this would result in, short-term, minor, adverse effects. However, these impacts would be primarily localized and, while individual animals might occasionally be killed on the road or suffer reproductive failure due to human disturbance, this would be within the natural range of variability of native species' populations and the effect would not be considered severe within the context of wildlife resources throughout Warner Valley. In addition restoration and enhancement of currently degraded habitat would constitute a long-term, minor to moderate, beneficial, effect on wildlife.

Impairment: Under Alternative 2 the impacts to wildlife resources would not rise to the level of impairment. There would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore, there would be no impairment of wildlife resources or values from the actions in Alternative 2.

Special-status Species

Analysis

Other than several species of bats, as described under Alternative 1, special-status wildlife are generally not expected to occur within most developed areas of Warner Valley due to the relatively high levels of habitat disturbance and human use. In general, construction of new facilities is expected to result in only negligible to minor adverse effects on special-status wildlife. However, several special-status bird species are known to use riparian habitat along Hot Springs Creek and in Drakesbad Meadow and construction in these areas could have short-term, minor to moderate, adverse effects on these species. Most of the special-status plants with potential to occur in the project area are found in wetlands, wet meadows, or along creeks and if present near existing facilities or the locations of proposed facilities, these species may be subject to local, minor, adverse effects resulting from construction, although every effort would be made to minimize such impacts. None of these impacts would jeopardize the continued existence of any special-status species and the potential beneficial effects on special-status species resulting from habitat enhancement and restoration that are a part of the project would be long-term and beneficial.

Cumulative Impacts

Cumulative impacts on special-status species are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, as described under Alternative 1, undoubtedly resulted in local,

long-term, moderate adverse effects on special-status plants and wildlife in Warner Valley, primarily through habitat degradation. Under Alternative 2, long-term, minor, adverse effects on special-status species could continue in developed areas throughout Warner Valley, along trails, in and around campgrounds, and in and around existing facilities at Drakesbad Guest Ranch. Additional short-term, minor, adverse impacts could occur as a result of construction of new facilities, rebuilding roads and trails, decommissioning outmoded facilities, and as a result of the Dream Lake Dam removal.

Conclusion

Under Alternative 2, impacts to special-status species would result in local, short-term, minor, adverse effects. These impacts would be localized and would not jeopardize the continued existence of any species or result in the destruction or adverse modification of critical habitat for any species. In addition, enhancement and restoration of habitat as a part of Alternative 2, could potentially result in long-term, minor to moderate, beneficial effects on special-status wildlife by increasing the extent of quality habitat and relocating certain facilities further away from sensitive resources.

Impairment: Under Alternative 2 the impacts to special-status species do not rise to the level of impairment. There would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of special-status wildlife or plant populations from actions in Alternative 2.

Analysis of Environmental Consequences – Alternative 3

Alternative 3 proposes many of the same improvements as Alternative 2. There are, however, several differences under Alternative 3 with potential relevance for biological and wetland resources. These include the construction of a new corral for horses and maintenance of the upper existing horse corral as a staging area for horseback rides; the reconstruction, rather than removal of Dream Lake dam; the use of sheet metal dams in the drainage ditches, rather then filling them, to restore sheet flow in Drakesbad Meadow. The Warner Valley Road improvements widen the blind curve, and follow the actions identified in the culvert inventory. The existing day use parking area and lower campground would be eliminated.

Vegetation

Analysis

Implementation of Alternative 3 would result in tree and vegetation removal in association with the Dream Lake Dam reconstruction, relocation of existing facilities, construction of the new concessioner housing and service center and the utility lines to serve them, new trails, and access roads. These would be considered local, minor, adverse effects on vegetation. Under Alternative 3 the horse corrals would remain in their current location but use of the lower corral would be discontinued and the upper corral would be used only for staging and a bio-filtration system would be added to mitigate the effects of effluent on natural habitat “downstream” of the corral.

A new corral would be built to house the horses away from sensitive meadow habitat in an area already degraded as habitat by proximity to other existing uses. The existing day use parking area would be relocated from the meadow to the existing lower campground and the lower campground would be closed. Relocation of the employee housing and minor facilities would be followed by restoration of currently degraded areas to a natural condition. These are each considered local, long-term minor beneficial effects on vegetation. Implementation of Alternative 3 would thus result in a net negligible effect on vegetation and would not impact vegetative resources within the Warner Valley.

Cumulative Impacts

Cumulative impacts to vegetation resources are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, development of the resort, and draining of the meadow, have resulted in long-term moderate degradation of vegetative resources in Warner Valley. Under Alternative 3 localized minor adverse effects on vegetation occur in conjunction with construction of new facilities, trails and roads. In addition, some of the proposed actions under Alternative 3 are intended to address existing sources of degradation by moving facilities away from sensitive habitat and active restoration of multiple areas that are currently degraded. In the future, fire management activities such as prescribed burns and mechanical thinning projects would occur.

Conclusion

Activities associated with Alternative 3 would result in long-term, minor, adverse effects on vegetation. However, these impacts would be primarily localized and, while individual trees or small areas of vegetation might be removed or otherwise degraded, the effect would not be considered severe within the context of vegetative resources throughout the Valley. Additionally, some of the activities themselves are intended to repair existing degradation of vegetative resources. Therefore, the net effects of Alternative 3 should be a long-term, minor, beneficial effect on vegetative resources and values.

Impairment: Under Alternative 3 the changes to vegetative resources which would occur do no rise to the level of impairment and there would be no change to the natural integrity of the park's plant communities, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of vegetation resources or values from the actions in Alternative 3.

Wetlands

Analysis

As under Alternative 2, Alternative 3 would replace undersized culverts along Warner Valley Road and the day use parking area would be relocated and the wetland that it impinges on would be restored. The proposed actions under Alternative 3 have been designed to avoid and minimize potential impacts to wetlands. Replacement of culverts along Warner Valley Road would result in

temporary, short-term adverse impacts to wetlands and riparian vegetation where they are present in the streams near the road. Construction of new facilities and improvements to existing facilities under Alternative 3 has been designed to avoid and minimize potential impacts to wetlands. Existing impacts on wetland resources in Warner Valley would be addressed to some extent under Alternative 3. Hydrology would be enhanced by adding culverts to the water tank access road at the ranger station as well as to trails crossing the meadow and additional metal check dams would be installed in the drainage ditches to increase water retention and surface sheet flow. The eroding banks of Hot Springs Creek in the vicinity of the pool and bathhouse would be stabilized using native vegetation. Dream Lake Dam, which has significantly altered local hydrology on the south slopes of Warner Valley would be replaced rather than removed. The overall net effect on wetland resources under Alternative 3 would be minor, long-term, and beneficial and would serve to reduce to some extent, but would not fully address, existing impacts of wetland resources within Warner Valley.

Cumulative Impacts

Cumulative impacts on wetlands are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, resort development, road and dam building, and draining of Drakesbad Meadow, have resulted in long-term major degradation of wetland resources in Warner Valley. While implementation of the preferred alternative would result in minor adverse effects on wetlands, it would also result in beneficial impacts on wetlands by addressing some of the existing sources of degradation as well as through direct restoration of wetland hydrology and vegetation.

Conclusion

Implementation of Alternative 3 would result in long-term, minor, adverse effects on wetlands. However, this alternative would also result in long-term, minor to moderate, beneficial effects on wetlands in Warner Valley. There would be a small net gain in wetland resources, functions, and values resulting from the Alternative 3.

Impairment: Under Alternative 3 the changes to wetland resources that would occur do not rise to the level of impairment and there would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of wetland resources or values from the actions in Alternative 3.

Wildlife

Analysis

The long standing development of Warner Valley has resulted in localized degradation of wildlife habitat but a diversity of wildlife species still inhabit the area. Wildlife present within the immediate vicinity of most of the proposed activities are habituated to human activity and adverse effects on these animals as a result of the activities proposed under Alternative 3 are generally expected to be negligible. Reconstruction of Dream Lake Dam could be expected to have a local,

short-term adverse effect on the beaver, bufflehead, and other species that inhabit the lake. However, there exists other suitable nearby habitat in Hot Springs Creek, upstream from Dream Lake, and in other nearby lakes for these species and the Lake would remain after dam reconstruction so this habitat would once again be available to the wildlife that use it. Therefore, adverse effects on the local wildlife populations would be considered minor. Work in and around sensitive habitat for wildlife, such as the willow and alder riparian thickets along Hot Springs Creek and in Drakesbad Meadow would be timed to avoid nesting and dispersal periods for riparian associated birds or only conducted after surveys prove these species to be absent. Implementation of Alternative 3 will, therefore, not threaten the continued existence of any wildlife species.

Cumulative Impacts

Cumulative impacts on wildlife are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses, including grazing, resort development, road and dam building, and draining of Drakesbad Meadow, have resulted in local, long-term, minor to moderate effects on wildlife resources in Warner Valley, primarily through degradation of habitat. Under Alternative 3, long-term, minor, adverse effects on wildlife would continue in developed areas throughout Warner Valley, along trails, in and around campgrounds, and in and around existing and proposed facilities at Drakesbad Guest Ranch.

Conclusion

Under Alternative 3, impacts to wildlife could result from construction of new facilities and other proposed activities and this would result in local, short-term, minor, adverse effects. However, these impacts would be primarily localized and, while individual animals might occasionally be killed on the road or suffer reproductive failure due to human disturbance, this would be within the natural range of variability of native species' populations and the effect would not be considered severe within the context of wildlife resources throughout Warner Valley. In addition restoration and enhancement of currently degraded habitat would constitute a minor, beneficial effect on wildlife.

Impairment: Under Alternative 3, the impacts to wildlife resources would not rise to the level of impairment. There would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of wildlife resources or values from the actions in Alternative 3.

Special-status Species

Analysis

Other than several species of bats, as described previously, special-status wildlife are generally not expected to occur within most developed areas of Warner Valley due to the relatively high levels of habitat disturbance and human use. In general, construction of new facilities is expected to result in only negligible to minor adverse effects on special-status wildlife. However, several

special-status bird species are known to use riparian habitat along Hot Springs Creek and in Drakesbad Meadow. Most of the special-status plants with potential to occur in the project area are found in wetlands, wet meadows, or along creeks and if present near existing facilities or the locations of proposed facilities, these species may be subject to construction related impacts. None of these impacts would jeopardize the continued existence of any special-status species and the potential beneficial effects on special-status species resulting from habitat enhancement and restoration that are a part of the project would be long-term and beneficial.

Cumulative Impacts

Cumulative impacts on special-status species are based on analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects of this alternative. Past land uses undoubtedly resulted in local, long-term, moderate adverse effects on special-status plants and wildlife in Warner Valley, primarily through habitat degradation. Under Alternative 3 localized, minor, adverse effects on special-status species could continue in developed areas throughout Warner Valley, along trails, in and around campgrounds, and in and around existing facilities at Drakesbad Guest Ranch. Additional local, minor, adverse impacts could occur as a result of construction of new facilities, rebuilding roads and trails, decommissioning outmoded facilities, and as a result of the Dream Lake Dam reconstruction. Cumulatively, these effects would not result in further impacts to special-status species within Warner Valley and may result in a net long-term, minor, beneficial effect through the restoration of wetland and upland habitat in conjunction with other improvements designed to move existing facilities out of or away from sensitive resources.

Conclusion

Under Alternative 3 impacts to special-status species would result in local, short-term, minor, adverse effects. These impacts would be localized and would not jeopardize the continued existence of any species or result in the destruction or adverse modification of critical habitat for any species. In addition, enhancement and restoration of habitat as a part of Alternative 3 could result in long-term, minor, beneficial effects on special-status wildlife by increasing the extent of quality habitat and relocating certain facilities further away from sensitive resources.

Impairment: Under Alternative 3 the impacts to special status species would not rise to the level of impairment. There would be no change to the natural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore, there would be no impairment of special-status wildlife or plant populations from the actions in Alternative 3.

References

Cowardin, Lewis M., et al., 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service.

Patterson, L. and D.J. Cooper, 2005. *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California,* Graduate Thesis.

4.4 Soundscapes

Methodology

Context, duration, and intensity together determine the level of impact for an activity. It is usually necessary to evaluate all three factors together to determine the level of noise impact. In some cases an analysis of one or more factors may indicate one impact level, while an analysis of another factor may indicate a different impact level, according to the criteria below. In such cases, best professional judgment based on a documented rationale must be used to determine which impact level best applies to the situation being evaluated.

The methodology used to assess noise impacts in this document is consistent with National Park Service *Management Policies 2006* and *Director's Order #47: Soundscape Preservation and Noise Management.* There is no current noise data collected for the Warner Valley area. In order to approximate impacts to soundscapes, areas of use by visitors were identified in relation to where both construction and operational activities are proposed. Additionally, national literature was used to estimate the average decibel levels of construction activity.

National Park Service Management Policies 2006 state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the National Park Service is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks.

The potential for change in soundscapes proposed by the alternatives was evaluated by identifying projected changes in visitor use and experience, and determining whether or how these projected changes would affect the desired soundscapes, to what degree, and for what duration.

Impact intensity	Impact Description
Negligible	Effects to natural sound environment would be at or below the level of detection and such changes would be so slight that they would not be of any measurable or perceptible consequence to the visitor experience or to biological resources.
Minor	Effects to the natural sound environment would be detectable, although the effects would be localized, and would be small and of little consequence to the visitor experience or to biological resources. Mitigation measures, if needed to offset adverse effects, would simple and successful.
Moderate	Effects to the natural sound environment would be readily detectable and largely localized, with small consequences to the visitor experience or to biological resources in the region. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Effects to the natural sound environment would be obvious and have substantial consequences to the visitor experience or to biological resources in the region. Extensive mitigation measures would be needed to offset any adverse effects and success would not be guaranteed.

Duration:
Short-term – Occurs only during the construction period.
Long-term – Occurs even after the construction period.

Impact intensity	Impact Description
Type:	
Beneficial –	Effects that would improve or increase natural sound environment and/or reduce features that impede natural sounds and visitor use and/or experience in the project area.
Adverse –	Effects that would degrade or reduce natural sound environment and/or increase features that impede natural sound environment and visitor use and/or experience in the project area.

Analysis of Environmental Consequences – Alternative 1 (No Action)

Soundscapes

Analysis

Under Alternative 1, none of the facilities of the proposed project would be implemented. The existing conditions at Warner Valley include a few facilities that are currently disruptive due to the noise they produce. The filter house located next to the pool and the generator near the dining hall are both noisy and detract from visitors' experience. Under this alternative, noise impacts from construction would not occur.

Cumulative Impacts

Cumulative effects to soundscapes discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. The No Action Alternative will maintain the existing soundscape. In the future, there are no plans that are likely to significantly alter the soundscape. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Alternative 1 would result in no new impacts to existing conditions. Therefore, Alternative 1 would have a long-term, minor, adverse impact given that Warner Valley has a greater impact under existing conditions on soundscapes than is currently desired by NPS (Eagan, 2009).

Impairment: Under Alternative 1 no soundscape specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan, therefore Alternative 1 would not impair the park's soundscape.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Soundscapes

Analysis

Under Alternative 2, there would be a significant difference between operational noise impacts and construction related noise impacts.

Construction Impacts

Construction activities associated with Alternative 2 include construction of new buildings, laying of concrete, insertion of boulders into the ground, and grading. The effect of construction noise would depend upon the type of construction activity, the distance between construction activities and the nearest noise sensitive uses, and the existing noise levels at those uses. Typical noise levels generated by different types of standard construction equipment at 50ft (dBA, Leq) are described below in **Table 4.4-1** (FTA, 2006).

TABLE 4.4-1
STANDARD CONSTRUCTION EQUIPMENT
NOISE LEVELS 50 FEET FROM SOURCE (DBA, LEQ)

Backhoes	80	Pile drivers (Impact)	101
Compactor	82	Pumps	76
Dozers	85	Scrapers	89
Generators	81	Shovel	82
Jack hammers	88	Truck	88
Paver	89		

Construction will occur throughout the Warner Valley. However, some activities will be occurring farther from visitors areas than others. For example, the dam removal will occur approximately ¼ mile from the Drakesbad Guest Ranch facilities and will have minor noise impacts. However, the construction of new concessioner house and the service center adjacent to the existing guest housing would have greater soundscape impacts. Seasonal access restrictions also require construction to be concurrent with peak visitor season (June to October). Construction will occur in the period over the course of one or two years.

Operational Impacts

Noise from park operations is and will continue to be minimal. There are proposed changes in each area of Warner Valley that will affect soundscapes at the project site. These impacts are discussed below according to which area of the park they will take place.

> *Campground, Trail, and Day Use Parking*. Alternative 2 would close the lower campground and relocate five campsites to the Upper Campground. As a result noise associated with visitor activities will be more concentrated in the Upper Campground area.

Additionally, the existing day use area, including the rock road base and access road, would be restored to a natural meadow/wetland and a parking area with 20 new parking spaces will be constructed. Restoring this area will enhance the natural soundscape it this part of the park. However, the addition of the parking area will likely eliminate any net beneficial impact that the restoration might have had on natural soundscapes.

Drakesbad Guest Ranch. Alternative 2 would construct a new service center outside the historic district with staff housing provided in tent cabins. The service center includes employee housing, gravel road and parking, 13 employee parking stalls, enclosed storage, and new locations for the generator, dumpster and propane tanks. The new employee housing will be relocated from above the dining hall and bunk house to 10 free-standing tent cabins that will surround a common bath house and outdoor social space. This relocation will further disperse noise associated with the peak season. The generator, dumpster, and propane tanks would be relocated from adjacent to the Drakesbad Guest Ranch dining hall to the new service area. This would concentrate noise associated with maintenance activities, minimize ambient noise generated by the equipment, and create distance between the equipment's noise and the visitors. Additionally, noise output from the new generator would be less than the existing generator. Also the bath house is being redesigned to eliminate the need for propane delivery to the pool thus reducing disturbance of natural soundscapes and the volleyball court is being eliminated and the area will be restored.

Dream Lake Dam. Alternative 2 would re-naturalize the meadow area through restoration of the fen, removal of the dam at Dream Lake and the creation of a channel network. This could potentially improve the health of frog populations and thereby enhance the natural soundscapes experienced by Warner Valley visitors.

Cumulative Impacts

Cumulative effects to soundscapes discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Actions taken since 1952 have led to perceivable negative changes to the period of significance (Sifford era) atmosphere. These changes occurred gradually enough that visitors either did not notice or the soundscapes were not affected. Proposed changes will occur in a shorter time frame so visitors will notice, but may view them as beneficial. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Alternative 2 would have short-term, major, adverse impacts but long-term, minor, beneficial impacts.

Impairment: Under Alternative 2 no soundscapes specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan, therefore Alternative 2 would not impair the park's soundscape.

Analysis of Environmental Consequences – Alternative 3

Soundscapes

Analysis

Like Alternative 2, under Alternative 3, there would be a significant difference between operational noise impacts and construction related noise impacts.

Construction Impacts

Similarly to Alternative 2, construction activities associated with Alternative 3 include construction of new buildings, laying of concrete, grading, and paving. The effect of construction noise would depend upon the type of construction activity, the distance between construction activities and the nearest noise sensitive uses, and the existing noise levels at those uses. Typical noise levels generated by different types of standard construction equipment at 50ft (dBA, Leq) are described in Table 4.4-1.

Construction will occur throughout the Warner Valley area although some activities will be occurring farther from visitors. For example, the dam reconstruction will occur approximately ¼ mile from the Drakesbad Guest Ranch facilities and will have minor noise impacts. However, the construction of new concessioner housing and the service center adjacent to the existing guest housing would have discernable impacts. Seasonal access restrictions also require construction to be concurrent with peak visitor season (June to October). Construction will occur in the period over the course of one or two years.

Operational Impacts

Noise from park operations is and will continue to be minimal. There are proposed changes in each area of Warner Valley that will affect soundscapes at the project site. These impacts are discussed below according to which area of the park they will take place.

> *Campground, Trail, and Day Use Parking*. Alternative 3 would close the lower campground and relocate the day use parking and trailhead to this location. The existing Day Use Area would be completely restored as analyzed under Alternative 2. Restoring this area will enhance the natural soundscape it this part of the park. However, the addition of the parking area will likely eliminate any net beneficial impact that the restoration might have had on natural soundscapes.
>
> *Drakesbad Guest Ranch*. This Alternative proposes a new, two-story employee housing facility outside of the historic district. This facility would also include enclosed storage for the bone yard and a hybrid power system including photovoltaic panels and a diesel generator. The existing generator, dumpster, propane tanks would also be relocated to the new service area. Noise generated by all of these sources would be concentrated and placed farther from the park visitors thus reducing the disruption of natural soundscapes.
>
> *Dream Lake Dam*. This alternative proposes to reconstruct the existing Dream Lake Dam to meet Bureau of Reclamation Standards. This would not have an impact on the long-term soundscapes in Warner Valley.

Cumulative Impacts

Cumulative effects to soundscapes discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Actions taken since 1952 have led to perceivable negative changes to the period of significance (Sifford era) atmosphere. These changes occurred gradually enough that visitors either did not notice or the soundscapes were not affected. Proposed changes will occur in a shorter time frame so visitors will notice, but may view them as beneficial. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Alternative 3 would have short-term, moderate, adverse impacts but long-term, minor, beneficial impacts.

Impairment: Under Alternative 3 no soundscapes specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan, therefore Alternative 3 would not impair the park's soundscape.

References

Federal Transit Administration (FTA), 2006. *Guidance Manual Transit Noise and Vibration Impact Assessment*.

Eagan, Sean, Personal communication, March, 2009

4.5 Cultural Resources

Methodology

In accordance with regulations of the Advisory Council on Historic Preservation (36 CFR 800) implementing Section 106 of the National Historic Preservation Act, *historic properties* have been identified within the project area that are either listed in, or eligible for listing in, the National Register of Historic Places. Historic properties can be affected by actions that in any way alter the attributes that qualify the resources for inclusion in the National Register. Adverse effects can result when the integrity of a resource's significant characteristics is diminished. Consideration was given both to the effects anticipated at the time and place of the undertaking, and to those potentially occurring indirectly at a later time and distance. Analysis took into account recommendations from the National Park Service's *Cultural Landscape Report for Drakesbad Guest Ranch* (CLR).

To provide consistency with requirements of the National Environmental Policy Act (NEPA), the effects on cultural resources are also described in terminology intended to convey the duration, intensity, and beneficial or adverse nature of potential impacts. Impacts could be of short-term, long-term, or permanent duration (Analysis of the duration of impacts is required under NEPA; however, duration is not required and is not usually considered in assessing effects in terms of the National Historic Preservation Act). The intensity of impacts is defined below.

Impact intensity	Impact Description
Negligible	When the impact is barely perceptible and not measurable. Significant character-defining attributes of historic properties (including the informational potential of archaeological resources) are not appreciably diminished by the undertaking;
Minor	When the impact is perceptible and measurable. The effects remain localized and confined to a single element contributing to the significance of a larger national register property/district, or archaeological site(s) with low to moderate data potential;
Moderate	When the impact is sufficient to alter character-defining features or historic properties, generally involving a single or small group of contributing elements, or archaeological site(s) with moderate to high data potential; or
Major	When the impact results in a substantial and highly noticeable change in character-defining features of historic properties, generally involving a large group of contributing elements and/or individually significant property, or archaeological site(s) with high to exceptional data potential.

Context:
Localized – Detectable only in the vicinity of the proposed action

Duration:
Short-term – Occurs only during the treatment action.
Long-term – Occurs after the treatment action.

Type:
Beneficial – Effects that would improve or increase character-defining features or historic properties or would reduce features that impede character-defining features or historic properties in the project area.
Adverse – Effects that would degrade or reduce character-defining features or historic properties or would increase features that impede character-defining features or historic properties in the project area

Analysis of Environmental Consequences – Alternative 1 (No Action)

Alternative 1 proposes no action, which assumes that no substantive changes will be made to the area. Under this alternative, Drakesbad Guest Ranch would remain unchanged and small scale features would remain in their present locations and conditions, and the bathhouse, pool, and circulation facilities remain unchanged.

Archaeological Resources

Analysis

Under Alternative 1 there would be no change in the existing conditions and hence no alteration of the existing treatment and management plan for archaeological resources in the Warner Valley area. In 2000, an archaeological investigation was completed for the Drakesbad Guest Ranch area by the Archaeological Research Program, Department of Anthropology, California State University, Chico (White, 2001). Thirty-three isolated archaeological finds were recorded and 36 archaeological sites were studied, 20 of which represented previously recorded resources. Archaeological resources are present throughout Warner Valley, particularly within the day use area, the Warner Valley campground area, and the Drakesbad Guest Ranch area. The park would continue to protect all known archaeological sites. Routine maintenance and repairs within the area would be conducted in accordance with the 2008 Servicewide Programmatic Agreement for compliance with Section 106 of the National Historic Preservation Act, and archaeological monitoring would be conducted, where appropriate, in conjunction with these routine activities. The potential for minor degradation of archaeological sites may exist in the future due to visitor use of the Warner Valley area and natural processes. Potential impacts include loss of information and alteration of the integrity of archaeological sites.

Cumulative Impacts

Cumulative impacts to archaeological resources are based on the analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with potential effects associated with this alternative. Humans have used this site for 4,000 years and each group has had some impact on the archaeology resources of the culture that came before. The Sifford family and later the NPS have consistently inflicted change to the facilities, thus impacting at some level archaeological resources during the last 100 years. In particular, Sifford managed the area by making changes during the period of significance and therefore, to some extent, a level of change is appropriate within this area (Sifford, 1994). In addition, as time goes on, archaeological resources could be subject to damage from vandalism, visitor access, and natural processes such as erosion and weathering. Data loss and minor degradation of site integrity could occur for archaeological resources currently located in areas frequented by park visitors, in areas vulnerable to natural erosional processes or affected by past park development. However, no heavy equipment will disturb the area and the current level of disturbance is on a similar order of magnitude as earlier cultures' disturbance.

Section 106 Summary

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR 800.5, Assessment of Adverse Effects), the NPS concludes that continuation of current management practices, through implementation of the no action alternative, would have no effect on archaeological resources. In accordance with Executive Order (EO) 13287, Preserve America, the NPS would monitor archaeological resources for evidence of potential impacts from either natural processes or from visitor use of the area, and would address these issues as they are identified.

Conclusion

Under Alternative 1, archaeological resources that are vulnerable to deterioration will be monitored by the NPS in accordance with EO 13287. Current management practices would continue, and the NPS would continue to protect the integrity of archaeological resources. Alternative 1 would not affect the park's archaeological resources.

Impairment: Under Alternative 1, there would be no change to the cultural integrity of the park, and no effects on the resource values highlighted in the 2002 General Management Plan, therefore Alternative 1 would not impair the park's archaeological resources.

Cultural Landscape Resources

Analysis

Under Alternative 1, the cultural landscape, which includes the Nationally Registered Drakesbad Guest Ranch, would be retained in its current condition and there would be no alteration in the existing management of the area. Routine maintenance and repairs would be limited to, and conducted in accordance with, the 2008 Servicewide Programmatic Agreement. Continued impacts to the cultural landscape and setting include minor changes due to natural erosional and weathering processes, concentrated visitor use and disorderly visitor parking, and the continued clutter and accumulation of noncontributing features to the historic district, such as the existing placement of garbage collection points, propane tank locations, service facility locations, the volleyball court and employee housing. Visitor experience would remain unchanged from its current level, which is somewhat diminished due to the presence of park facilities in the cultural landscape setting of the Drakesbad Guest Ranch.

Cumulative Impacts

With the implementation of Alternative 1, cultural landscape resources would be maintained in their current condition. The existing cultural landscape is somewhat diminished due to visitor use and the placement of noncontributing service facilities. The park would continue to maintain and restore historic structures when feasible in accordance with the EO 13287 and the 2008 Servicewide Programmatic Agreement. Resource data and integrity would continue to be vulnerable to the effects of natural processes and concentrated visitor use. Visitor experience would continue to be impacted due to the existing placement of park facilities and services in locations that detract from the historical setting of the cultural landscape.

Section 106 Summary

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative 1 would have no effect on cultural landscape resources within Warner Valley. The integrity of cultural landscape resources would continue to be managed, maintained and protected by the NPS in accordance with the 2008 Servicewide Programmatic Agreement. Although the potential for future impacts from natural processes and concentrated visitor use exists, these issues would be monitored and addressed by the NPS as they are identified.

Conclusion

The no action alternative would not affect the existing integrity of the cultural landscape, which includes the Drakesbad Guest Ranch Historic District. The noncontributing features present within the Drakesbad Guest Ranch at the time of its nomination to the National Register would remain unchanged. The NPS would continue to conduct routine maintenance and repairs within the area, in accordance with the 2008 Servicewide Programmatic Agreement, to maintain and protect the integrity of the site. The NPS would monitor for potential impacts leading to any change in the integrity of the cultural landscape and would address these impacts as they are identified.

Impairment: Under Alternative 1, no cultural resources specific to the park's purpose would be affected, and there would be no change to the existing integrity of the cultural landscape and no effects on the resource values highlighted in the 2002 General Management Plan. Therefore Alternative 1 would not impair the park's cultural landscape resources.

Analysis of Environmental Consequences – Alternative 2 (Preferred)

Alternative 2 proposes to relocate the fee station to a new area west of the historic ranger station and make improvements to parking and pull-out areas near the new fee station. A new service road would be constructed and Warner Valley Road would be restored. The existing day use parking area would be relocated to the lower campground. Various campground improvement projects are proposed for the upper campground. Within Drakesbad Guest Ranch, employee housing will be relocated outside of the historic district, combined with added facilities. The current bathhouse and pool will be renovated and parking areas within Drakesbad Guest Ranch will be redesigned. Also under this alternative, Drakesbad Meadow will be returned to its natural fen ecology through the filling of man-made features. Both the Dream Lake Dam and the materials that make up the dam would be removed, also returning this area to its natural condition.

Archaeological Resources

Analysis

Several archaeological resources may be adversely affected by proposed actions related to Alternative 2 (White, 2001). In particular, archaeological resources identified by G. White in the ranger station area, the Warner Valley campground area, the day use area, the central Drakesbad

area, upper Drakesbad area, and the Dream Lake Dam area, are at risk. Likewise, the possibility exists for the inadvertent discovery and impacts to previously unidentified archaeological resources encountered during the implementation of proposed alternative activities. Under Alternative 2, the park would continue to protect and maintain all known archaeological sites. Degradation of archaeological sites could occur due to grading, trenching, clearing, road construction, the restoration of Drakesbad Meadow and Dream Lake to a natural environment, as well as other proposed activities. In 2000, an archaeological investigation was completed for the Drakesbad Guest Ranch area by the Archaeological Research Program, Department of Anthropology, California State University, Chico (White, 2001). Thirty-three isolated archaeological finds were recorded and 36 archaeological sites were studied, 20 of which represented previously recorded resources. The documented prehistoric and historic-period presence in the Warner Valley and Drakesbad Guest Ranch areas indicates an increased likelihood for the discovery of archaeological resources. Without mitigation, these resources could be subject to damage and loss of information. National Park Service standard mitigation procedures will be followed to address these impacts (see Section 4.11).

Cumulative Impacts

Cumulative impacts to archaeological resources are based on the analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with the potential effects of this alternative. Humans have used this site for 4,000 years and each group has had some impact on the archaeology resources of the culture that came before. The Sifford family and later the NPS have consistently inflicted change to the facilities, thus impacting at some level archaeological resources during the last 100 years. In particular, Sifford managed the area by making changes during the period of significance and therefore, to some extent, a level of change is appropriate within this area. The actions considered in this alternative will be less damaging than what has happened in the past 100 years because the NPS currently considers the full cultural landscape in its planning process and has mitigation in place to protect resources. However, these resources could be subject to damage from, new construction, demolition, rehabilitation of existing facilities and utility corridors, the restoration of the natural environment, vandalism, visitor access, and natural processes. In the future, while no other major construction is envisioned in the surrounding five miles, if visitors are encouraged to recreate here, some low level of impact will continue to occur regardless of the chosen alternative.

Section 106 Summary

The NPS concludes that implementation of Alternative 2 will have an adverse effect on archaeological resources (36 CFR 800.5, Assessment of Adverse Effects). Recognizing this, NPS would follow the process outlined in a Programmatic Agreement with the California SHPO and the Advisory Council on Historic Preservation (ACHP) to mitigate adverse effects to archeological resources.

Conclusion

Impacts on archaeological resources with the implementation of Alternative 2 would result in a long-term, minor, adverse impact due to damage from new construction, demolition, rehabilitation of existing facilities and utility corridors, visitor access, and natural processes. Such

potential impacts would include deposits, loss of information, and changes in the integrity of archaeological sites. NPS mitigation procedures for the Warner Valley area would be outlined in a Programmatic Agreement with the California SHPO and the ACHP and will be followed to address these impacts (see also Section 4.11, Mitigation Measures).

Impairment: The archaeological resources present within the project area are not identified within the park's establishing legislation, thus under Alternative 2, no archaeological resources specific to the park's purpose would be affected. There would be no effect on the integrity of the broader cultural context represented by the archaeological resources in the area, and no effects on the resource values highlighted in the 2002 General Management Plan. Although long-term, minor, adverse impacts upon archaeological resources may result from implementation of Alternative 2, these impacts do not rise to the level of impairment.

Cultural Landscape Resources

Analysis

Major adverse impacts to cultural landscape resources include the loss of contributing resources within the Drakesbad Guest Ranch Historic District through the removal of Dream Lake Dam (contributing structure) and the draining of Dream Lake (contributing feature).

Moderate adverse impacts to the historic district include the addition of new structures and circulation features, road construction, changes in existing use (the corral) additions or modifications to the exteriors of historic structures (redeveloped/new surfacing for outdoor dining area) and construction of new structures (pole barn and new infrastructure) within the historic building complex.

The ecological restoration of Drakesbad Meadow is a moderate adverse impact, conditional on the implementation of a vegetation management plan to maintain historic character and historic views. Vegetation shall be managed consistent with the recommendations in the CLR, including maintaining the historically open character of the meadow as a contributing resource to the historic district.

Beneficial impacts to the cultural landscape include the relocation of park operation and administrative facilities and employee housing outside of the historic district, the rehabilitation of circulation through the meadow (reducing the footprint of the road to the pool and adding drainage technologies to the new trail), and the relocation of non-contributing small-scale features including the volleyball court and garbage receptacles to locations outside of the Drakesbad Guest Ranch Historic District.

Cumulative Impacts

Cumulative impacts to cultural landscape resources are based on the analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with the potential effects of this alternative. A series of actions during the last 100 years have had a moderate affect on the integrity of the historic district including the siting of temporary structures (trailers), undefined parking for automobiles, and the random placement of several small-scale features within the

district including trash cans, propane tanks, and numerous directional and safety signs. Dream Lake Dam has breached twice in the past. Complete removal of the dam is much more significant than unintentional breaches that were quickly plugged.

Section 106 Summary

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative 2 has an adverse effect on cultural landscape resources including the Drakesbad Guest Ranch Historic District. The NPS would follow the process outlined in a Programmatic Agreement with the California SHPO and the ACHP to mitigate any adverse effects.

Conclusion

Impacts on cultural landscape resources that would result in a long-term, major, adverse impact include the removal of Dream Lake Dam (a contributing resource to the Drakesbad Guest Ranch Historic District). In addition, proposed changes in circulation, the addition of new structures, and changes in land use would result in moderate adverse impacts to the historic district. The ecological restoration of Drakesbad Meadow also results in a moderate adverse impact to cultural landscape resources. Beneficial effects include the removal of non-historic NPS operations and administrative functions to an area outside the historic district, and the improvement of circulation through the meadow. Collectively, these proposed activities could diminish cultural landscape resources as well as diminish the integrity of the National Register district.

Impairment: The cultural landscape resources present within the project area are not identified in the park's establishing legislation thus, under Alternative 2, no cultural landscape resources specific to the park's purpose would be affected. Additionally, there would be no effects on the resource values highlighted in the 2002 General Management Plan. Although long-term, major, adverse impacts upon the cultural landscape resources would result from the implementation of Alternative 2, there would be no change in the integrity of the broader cultural context signified by the area. The impacts that would result from the implementation of Alternative 2 do not rise to the level of impairment.

Analysis of Environmental Consequences – Alternative 3

Alternative 3 proposes many of the same improvements as Alternative 2; some of the differences include the relocation of the horse corral to an off-site location, the replacement of the Dream Lake Dam, the restoration of Drakesbad Meadow to its original fen ecology by damming the human-made ditches with sheet metal so they no longer dewater the meadow, and the widening of the blind curve on Warner Valley Road and the addition of a drainage ditch, as well as other auxiliary road and facility improvements.

Archaeological Resources

Analysis

Under Alternative 3, the park would continue to protect and maintain all known archaeological sites; however, construction activities could degrade archaeological sites from grading, trenching,

clearing, road construction, and other ground-disturbing activities. In 2000, an archaeological investigation was completed for the Drakesbad Guest Ranch area by the Archaeological Research Program, Department of Anthropology, California State University, Chico (White, 2001). Thirty-three isolated archaeological finds were recorded and 36 archaeological sites were studied, 20 of which represented previously recorded resources. The documented prehistoric and historic-period presence in the Warner Valley and Drakesbad Guest Ranch areas indicates an increased likelihood for adverse impact to archaeological resources. In particular, archaeological resources identified by G. White in the Ranger Station area, the Warner Valley campground area, the day use area, the Central Drakesbad area, Upper Drakesbad area, and the Dream Lake Dam area, are at risk. Such archaeological resources could be subject to damage and loss of information by proposed actions associated with this alternative. Disturbance of archaeological sites could result in a permanent, irreversible loss of the integrity of individual sites, and therefore, the impact to archaeological resources would be a local, long-term, minor, adverse impact. National Park Service standard mitigation procedures will be followed to address these impacts (see Section 4.11).

Cumulative Impacts

Cumulative impacts to archaeological resources are based on the analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with the potential effects of this alternative. Humans have used this site for 4,000 years and each group has had some impact on the archaeology resources of the culture that came before. The Sifford family and later the NPS have consistently inflicted change to the facilities, thus impacting at some level archaeological resources during the last 100 years. In particular, Sifford managed the area by making changes during the period of significance and therefore, to some extent, a level of change is appropriate within this area. The actions considered in this alternative will be less damaging than what has happened in the past 100 years because the NPS currently considers the full cultural landscape in its planning process and has mitigation in place to protect resources. However, these resources could be subject to damage from, new construction, demolition, rehabilitation of existing facilities and utility corridors, the restoration of the natural environment, vandalism, visitor access, and natural processes. Dream Lake Dam has breached twice in the past. In the future, while no other major construction is envisioned in the surrounding five miles, if visitors are encouraged to recreate here, some low level of impact will continue to occur regardless of the chosen alternative.

Section 106 Summary

The NPS concludes that implementation of Alternative 3 has the potential to have an adverse effect on archaeological resources (36 CFR 800.5, Assessment of Adverse Effects). Recognizing this potential, NPS would follow the process outlined in a Programmatic Agreement with the California SHPO and the ACHP to mitigate adverse any effects.

Conclusion

Impacts on archaeological resources with the implementation of Alternative 3 could result in a long-term, minor, adverse impact due to damage from new construction, demolition, rehabilitation of existing facilities and utility corridors, visitor access, and natural processes. Such potential impacts would include deposits, loss of information, and changes in the integrity of

archaeological sites. NPS mitigation procedures for the Warner Valley area would be outlined in a Programmatic Agreement with the California SHPO and ACHP and will be followed to address these impacts (see also Section 4.11, Mitigation Measures).

Impairment: The archaeological resources present within the project area are not identified within the park's establishing legislation, thus under Alternative 3, no archaeological resources specific to the park's purpose would be affected. There would be no effect on the integrity of the broader cultural context signified by the archaeological resources in the area and no effects on the resource values highlighted in the 2002 General Management Plan. Although long-term, minor, adverse impacts upon archaeological resources may result from the implementation of Alternative 3, these impacts do not rise to the level of impairment.

Cultural Landscape Resources

Analysis

Moderate adverse impacts to cultural landscape resources include alterations to the historic district, construction of a new dam to the Bureau of Reclamation Standards; new road construction, expansion of existing structures and park facilities, and construction of new structures and facilities. The restoration of Drakesbad Meadow is a moderate adverse impact, conditional on the implementation of a vegetation management plan to maintain the three historic views. Vegetation shall be managed consistent with the CLR recommendations, including maintaining the historically open character of the meadow as a contributing resource to the historic district.

Beneficial impacts to the cultural landscape include the relocation of park administrative and operational facilities outside the historic district, relocation of employee housing, and the relocation of small scale features such as garbage receptacles outside the historic district. Rebuilding Dream Lake Dam will give the facility a 100 year plus lifespan thereby giving permanence to a contributing feature that is likely to fail if no action were taken. Collectively, these impacts may create long-term beneficial impacts associated with visitor experience of the Drakesbad Guest Ranch Historic District.

Cumulative Impacts

Cumulative impacts to cultural landscape resources are based on the analysis of past, present, and reasonably foreseeable future actions in Warner Valley, in combination with the potential effects of this alternative. A series of actions during the last 50 years, have degraded the cultural landscape (trailers, trash cans, propane tanks, and inappropriate buildings).

Section 106 Summary

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative 3 would have an adverse effect on cultural landscape resources, including the Drakesbad Guest Ranch Historic District. The NPS would follow the process outlined in a Programmatic Agreement with the California SHPO and the ACHP to mitigate any adverse effects.

Conclusion

Alternative 3 would result in a long-term, moderate, adverse impact due to alterations of the cultural landscape by the proposed rebuilding of Dream Lake Dam as a contributory feature to the Nationally Registered Drakesbad Guest Ranch property and due to the restoration of Drakesbad Meadow. Alternative 3 would also have long-term, moderate, beneficial effects from the removal of non-historic NPS operations and administrative functions to an area outside the historic district. NPS mitigation procedures for the Warner Valley area would be outlined in a Programmatic Agreement with the California SHPO and ACHP and will be followed to address these impacts (see also Section 4.11, Mitigation Measures).

Impairment: The cultural landscape resources present within the project area are not identified in the park's establishing legislation thus, under Alternative 3, no cultural landscape resources specific to the park's purpose would be affected. There would be no effect on the integrity of the broader cultural context signified by the cultural landscape and no effects on the resource values highlighted in the 2002 General Management Plan. Although both beneficial and adverse long-term, moderate impacts upon the cultural landscape would result from the implementation of Alternative 3, these impacts do not rise to the level of impairment.

References

National Park Service (NPS), 2005. *Cultural Landscape Report for Drakesbad Guest Ranch*.

Sifford, Roy, 1994. *Sixty Years of Siffords at Drakesbad*. Susanville, CA: Lahontan Images.

White, G.G., 2001. *Report of Archaeological, Geoarchaeological, and Palynological Investigations in Lassen Volcanic National Park, California*. Prepared for Lassen Volcanic National Park.

4.6 Visitor Experience

Methodology

Visitor experience, for the purpose of this analysis, refers to the quality and effectiveness of the facilities for the use of visitors. Part of the purpose of the National Park is to offer opportunities for recreation, education, inspiration, and enjoyment. Consequently, one of the park's management goals is to ensure that visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities. Analysis was based on whether there was a complete loss of a recreational opportunity, a change in access to or availability of a recreational opportunity, or a change in the quality of visitor experience or recreational opportunities. Changes in safety are addressed in Section 4.7, Public Health and Safety.

The potential for change in visitor experience proposed by the alternatives was evaluated by identifying how projected changes may impact the experience of visitors, and determining whether or how these projected changes would affect the desired visitor experience, to what degree, and for what duration.

Impact intensity	Impact Description
Negligible	Changes in visitor use and/or experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.
Minor	Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
Moderate	Changes in visitor use and/or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.
Major	Changes in visitor use and/or experience would be readily apparent and severely adverse or exceptionally beneficial. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.

Duration:
Short-term – Occurs only during the treatment action.
Long-term – Occurs after the treatment action.

Type:
Beneficial – Effects that would improve or increase visitor use opportunities and/or experience or would reduce features that impede visitor use and/or experience in the project area.
Adverse – Effects that would degrade or reduce visitor use opportunities and/or experience or would increase features that impede visitor use and/or experience in the project area.

Analysis of Environmental Consequences – Alternative 1 (No Action)

Visitor Experience

Analysis

Alternative 1 proposes that no change would take place to the existing conditions of Warner Valley. There would be no new impacts to visitor experience under the No Action Alternative. As discussed in Chapter 3, Affected Environment, the Comprehensive Site Plan has identified numerous features within Warner Valley that detract from the visitors' experience due to their existing location. The current arrangement and location of the fee station is considered difficult to use by park visitors. No change to this arrangement will continue the present difficulty for the park user. The location of several park facilities such as the dumpster, propane tanks and site storage ('bone yard') is unsightly and detracts from the visitor's experience of these non-contributing features in the historic district. In addition, the pool filter house located next to the pool deck is noisy and obstructs the view of the creek, while the generator near dining hall is noisy and nearby electrical lines unsightly. There are numerous areas of the park that are not accessible and therefore do not comply with the Americans with Disabilities Act (ADA) requirements (42 U.S.C. §§ 12101 et seq., 28 CFR Part 35 (Title II, Department of Justice)). The campgrounds are divided by a road and are disorganized. Lastly, the Pacific Crest Trail (PCT) is difficult to follow because it lacks clear trail connections and signage. It becomes disconnected where it crosses Warner Valley Road, causing hikers to travel along the road a short distance before continuing on the trail.

While there are problems with the layout of Warner Valley, it continues to be a popular destination, in particular at Drakesbad Guest Ranch. In the long term, Dream Lake Dam will likely fail and the recreational opportunities related to it will be lost. However, these recreational activities could be replaced with other types of opportunities available in the resulting restored riverine environments.

Cumulative Impacts

Cumulative effects to visitor experience discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. In the past, the Sifford family and the National Park Service have structured the type of recreation that people participate in. The No Action Alternative will maintain the same set of recreation options. In the future, there are no plans that are likely to significantly alter recreational opportunities with the exception of the potential dam failure. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Visitors continue to make this area of the park a destination regardless of the existing design and layout. Some visitors may see the slow decline in facilities as adverse. Therefore, the No Action Alternative would have a long-term, minor, adverse effect.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Visitor Experience

Analysis

The visitor experience would be affected by noise, dust, and fumes from construction equipment in the project area during construction. Visitors would be restricted from parts of the project area for safety reasons during the period of construction. Construction activities would result in a moderate, short-term, adverse effect on the visitor experience. Once construction is complete, the function of the buildings, roadways, and facilities of the park and its accessibility to all visitors would be greatly improved, and provide a moderate, long-term, beneficial effect. The removal of Dream Lake Dam would drain the impoundment that is currently used for lake-based recreation. These activities would still exist at nearby Juniper Lake. The restored riverine system would provide other types of recreation such as fishing as well as the educational opportunity for visitors to learn about the benefits of ecosystem restoration.

Alternative 2 would provide the following benefits to visitors:

- ADA accessible site in the campground, bathhouse, and outdoor dining area
- Safe and user-friendly entry area
- Improvements to the corral
- Relocated features such as the propane tanks, dumpster and generator to the new service area and out of the sight and sound of visitors at Drakesbad Guest Ranch
- Restored natural and historic areas throughout the project area
- Improvements to the campground arrangement
- PCT connectivity throughout Warner Valley

Cumulative Impacts

Cumulative effects to visitor experience discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. In the past, actions since 1952 have led to perceivable negative changes to the period of significance (Sifford era) atmosphere. These changes occurred gradually enough that visitors either did not notice or the visitor experience was not affected. Proposed changes will occur in a shorter time frame so visitors will notice, but may view them as beneficial. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

While the most dramatic change under Alternative 2 would be the removal of Dream Lake Dam, overall the changes in this alternative would be viewed as beneficial by most park visitors, though long-time guests of Drakesbad Guest Ranch would consider the loss of Dream lake as adverse.

During construction, Alternative 2 would have minor, short-term adverse impacts that would require temporary mitigation. Post-construction, Alternative 2 would result in long-term, moderate, beneficial and adverse impacts on visitor experience.

Analysis of Environmental Consequences – Alternative 3

Visitor Experience

Analysis

The visitor experience would be affected by noise, dust, and fumes from construction equipment in the project area during construction. Visitors would be restricted from parts of the project area for safety reasons during the period of construction. Construction activities would result in a minor, short-term, adverse effect on the visitor experience. Once construction is complete, the function of the buildings, roadways, and facilities of the park and its accessibility to all visitors would be greatly improved, and provide a moderate, long-term, beneficial effect. This alternative would provide the same PCT connectivity as Alternative 2. Under Alternative 3, five campsites will be eliminated when the Day Use Parking area is relocated to the lower campground area, thus reducing the overall number of campsites. The reconstruction of Dream Lake Dam would ensure that existing recreational activities continue to be available on the lake, would continue in the future and would be within walking distance of the rest of the Warner Valley facilities.

Alternative 3 would provide the following benefits to visitors:

- ADA accessible site in the campground, bathhouse, and outdoor dining area
- Safe and user-friendly entry area
- Relocation of the corral
- Relocated features such as the propane tanks, dumpster and generator to the new service area and out of the sight and sound of visitors at Drakesbad Guest Ranch
- Restored natural and historic areas throughout the project area
- Improvements to the campground arrangement
- PCT connectivity throughout Warner Valley

Cumulative Impacts

Cumulative effects to visitor experience discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Actions taken since 1952 have led to perceivable negative changes to the period of significance (Sifford era) atmosphere. These changes occurred gradually enough that visitors either did not notice or the visitor experience was not affected. Proposed changes will occur in a shorter time frame so visitors will notice, but may view them as beneficial. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

The reconstruction of Dream Lake Dam would ensure that recreation at Dream Lake would continue. This, in addition to the other upgrades to the facilities, would result in beneficial changes. Alternative 3 would have minor, short-term adverse impacts during construction, which would require temporary mitigation. Post-construction, Alternative 3 would result in long-term, minor, beneficial impacts on visitor experience.

4.7 Public Health and Safety

Methodology

The potential for change in public health and safety for the visitors and staff proposed by the alternatives was evaluated by identifying projected changes in the infrastructure and new design of Warner Valley in the Site Comprehensive Plan that would protect the health and safety of visitors and staff, and determining whether or how these projected changes would affect the desired public health and safety, to what degree, and for what duration.

Impact intensity	Impact Description
Negligible	Changes in public health and safety would be below or at the level of detection.
Minor	Changes in public health and safety would be detectable, although the changes would be slight. The public may or may not be aware of the effects associated with the alternative, but the effects would be slight.
Moderate	Changes in promoting the health and safety of visitor and/or staff use and/or experience would be readily apparent. The impacts could have an appreciable health and safety effect.
Major	Changes in the health and safety of the visitor or staff experience would be readily apparent and severely adverse or exceptionally beneficial. The visitor and/or staff would be aware of the effects associated with the alternative

Duration:
Short-term – Occurs only during the treatment action.
Long-term – Occurs after the treatment action.

Type:
Beneficial – Effects that would improve or increase public health and safety or would reduce features that impede public health and safety in the project area.
Adverse – Effects that would degrade or reduce public health and safety or would increase features that impede public health and safety in the project area.

Analysis of Environmental Consequences – Alternative 1 (No Action)

Public Health and Safety

Analysis

The no action alternative, or no change in the existing conditions at Warner Valley, would result in a minor, long-term, adverse effect due to the continuation of existing facilities in the park that impact the health and safety of visitors and staff. Without changes to the existing conditions, safety for the guests and park staff will continue to pose a risk. The current location of the fee station presents visitor safety issues and the existing pull-out is adjacent to a dangerous curve. Dust is a concern along the roads and within the lower campground adjacent to the road. There is a lack of ADA-accessible camping. The bathhouse is also not accessible and is in a state of disrepair.

Cumulative Impacts

Cumulative effects to public health and safety discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Warner Valley Road has been a dirt/gravel narrow road for 90 years. Generally, visitors expect this condition and drive at appropriate speeds. In the future there is no plan to pave or widen this road. There is a plan to thin the vegetation to create defensible space adjacent to the road in the event of fire. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Overall, the no-action alternative would have a minor, long-term, adverse impact.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Public Health and Safety

Analysis

Alternative 2 (the preferred alternative) would relocate the fee station to west of the ranger station and provide three off roadway visitor parking spaces. Road dust would be reduced by installing uniform aggregate on the road. The lower campground would be closed permanently and the upper campground would undergo renovations that would include expanding its capacity and adding an accessible campsite. A new section of trail would be added to connect the Pacific Crest Trail (PCT) between the new day use and old day use parking areas. The bathhouse would be expanded and renovated. Utilities mains and services would be extended to the building sites of the concessioner housing and service center. Sewer and domestic water service would connect to the existing mains located in the road. Water service for fire protection would require new hydrants connected to additional water tanks. Sizing of all utilities would be based on demand requirements and hydrologic conditions, which would be determined during detailed design of all improvements. During construction, there is potential for construction-related accidents, as during any construction project.

Cumulative Impacts

Cumulative effects to public health and safety discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Warner Valley Road has been a dirt/gravel narrow road for 90 years. Generally, visitors expect this condition and drive at appropriate speeds. In the future, there is no plan to pave or widen this road. There is a plan to thin the vegetation to create defensible space adjacent to the road in the event of fire. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Alternative 2 would result in a long-term, moderate, beneficial effect. However, some hazards on the road will continue. There would be short-term, negligible, adverse effects from construction activity, but this activity would not impact health and safety. Changes will make the area a more accessible place for those with limited mobility and safer for all.

Analysis of Environmental Consequences – Alternative 3

Public Health and Safety

Analysis

The entry area would be reconfigured with the iron ranger moved adjacent to the ranger station. The service road to the water tank would remain, but a chain gate across the entry would divert cars from using it mistakenly. An additional public safety measure includes the widening of the blind curve on the uphill side of Warner Valley Road. All other modifications that would affect public health and safety within the campground, trail and day use parking, concessioner area and service center would be identical to Alternative 2.

Cumulative Impacts

Cumulative effects to public health and safety discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Warner Valley Road has been a dirt/gravel narrow road for 90 years. Generally, visitors expect this condition and drive at appropriate speeds. In the future, there is no plan to pave or widen this road. There is a plan to thin the vegetation to create defensible space adjacent to the road in the event of fire. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Alternative 3 would result in a long-term, moderate, beneficial effect. There would be negligible, short-term, adverse effects from construction activity, but would not impact health and safety. Changes will make the area a more accessible place for those with limited mobility and safer for all.

4.8 Transportation

Methodology

The focus of this impact assessment was on the effect of changes to Warner Valley's roadway circulation, parking areas, and facilities on traffic volumes and associated traffic flow and safety conditions. An important consideration for this assessment is that it is expected there would be no increases in visitation levels to Warner Valley. Analysis of effects was qualitative, and professional transportation engineering judgment was applied to reach reasonable conclusions as to the context, intensity, and duration of potential impacts. When possible, mitigation measure(s) were incorporated into the Comprehensive Site Plan to reduce the intensity of adverse effects.

Traffic Flow Conditions

This section assessed potential changes in traffic volumes associated with proposed changes to visitor accommodations and/or parking facilities. Changes in traffic volumes were then judged as to whether they would substantially change the levels of congestion on the roadway system serving Warner Valley.

Traffic Safety/Conflicts

This section assessed proposed changes in roadway alignments and/or parking facilities (location and number of parking spaces) as to their effect on the potential for traffic conflicts.

Impact intensity	Impact Description
Negligible	Effects considered not detectable and would have no discernible effect on traffic flow and/or traffic safety conditions.
Minor	Effects on traffic flow and/or traffic safety conditions that would be slightly detectable, but not expected to have an overall effect on those conditions.
Moderate	Effects that would be clearly detectable and could have an appreciable effect on traffic flow and/or traffic safety conditions.
Major	Effects that would have a substantial, highly noticeable influence on traffic flow and/or traffic safety conditions and could permanently alter those conditions.

Duration:
Short-term – Temporary, associated with transitional types of activities.
Long-term – Permanent effect on traffic flow and/or traffic safety conditions.

Type:
Beneficial – Effects that would improve traffic flow and traffic safety reducing levels of congestion and occurrences of vehicle/vehicle, and vehicle/pedestrian conflicts.
Adverse – Effects that would negatively alter traffic flow and traffic safety by increasing levels of congestion and occurrences of vehicle/vehicle, and vehicle/pedestrian conflicts.

Analysis of Environmental Consequences – Alternative 1 (No Action)

Transportation

Analysis

Traffic Flow Conditions

Under Alternative 1, camping, lodging, parking, and circulation facilities in Warner Valley would remain in their current locations, in their current conditions, and at their current capacities. The number of daily vehicle trips generated by activities at those locations (visitors and employees) would remain the same. Traffic flow conditions on roadways in the Warner Valley area would be the same as described in Chapter 3, Affected Environment. For example, the configuration of the fee station ("iron ranger") would continue to require visitors to stop their vehicles in the road, or park at the ranger station and walk back 100 feet to access the fee station. Also, the gravel road leading to the water tank for the ranger's station would continue to create confusion to visitors who mistake it for an access road, and the edge "creep" of parking areas and roads in the Drakesbad Guest Ranch area would continue to create unclear zones for traffic. Warner Valley would continue to have inefficient traffic flow and circulation for those reasons.

Traffic Safety/Conflicts

As stated above, under Alternative 1, the number of daily vehicle trips generated by activities in Warner Valley would remain unchanged, as would the number of parking spaces and the alignment and configuration of roadways serving Warner Valley. Traffic safety conditions in the Warner Valley area would be the same as described in Chapter 3, Affected Environment. For example, the configuration of the fee station would continue to require visitors to stop their vehicles in the road, or park at the ranger station and walk back to access the fee station. In addition, Warner Valley Road would continue to have blind curves (at the fee station and approximately one-half mile past the ranger station). Lastly, the gravel road leading to the water tank for the ranger's station would continue to confuse visitors who mistake it for an access road, and the edge "creep" of parking areas and roads in the Drakesbad Guest Ranch area would continue to create unclear zones for traffic. Vehicles and pedestrians sharing the road, unclear travel paths for vehicles confusing motorists, and restricted ability for motorists to see other vehicles around blind curves would continue to create traffic safety hazards in the Warner Valley area.

Cumulative Impacts

Cumulative effects to transportation discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

The No-Action Alternative 1 would have a local, long-term, moderate, adverse effect. Continued operations in Warner Valley would cause local, long-term, moderate, adverse impacts to traffic flow and traffic safety conditions due to the unchanged alignment of Warner Valley Road and unchanged circulation patterns.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Transportation

Analysis

Construction-related Transportation Effects

The construction effort for Alternative 2 would have local, short- and long-term adverse transportation impacts. The intensity and nature of the construction activity would vary over the construction period, and the range of adverse impacts to traffic flow and safety conditions would similarly vary. Adverse construction-related transportation impacts would primarily relate to temporary delays (up to 30 minutes, Monday through Friday) on Warner Valley Road.

During intense construction periods, there would be local, short-term, moderate, adverse impacts to transportation conditions. Construction activities would generate varying numbers of vehicle trips (depending on the type of work) to accommodate construction workers, trucks, and equipment. Vehicle trips generated by the construction activities would have readily apparent, but localized and short-term, adverse impacts on traffic flow and traffic safety in the project area. Less intensive construction efforts at the project site (e.g., revegetation and restoration efforts) would require fewer workers and few truck trips, and would have local, short-term, minor, adverse impacts to traffic flow and traffic safety conditions.

Mitigation measures (e.g., implementation of a traffic control plan, with advance warning signs, and flaggers to direct traffic) would be employed to reduce transportation effects (though the measures would not change the magnitude of the adverse effects). Therefore, the effect of increased traffic volumes associated with construction activities in the Warner Valley area would be minor to moderate, depending on the intensity of the construction activity and the traffic volumes on area roads used by construction-related vehicles.

Operation-related Effects on Traffic Flow Conditions

Under Alternative 2, the number of overnight accommodation facilities for visitors in the Warner Valley area (lodging and campsites) would not change from that under Alternative 1. With the number of park overnighters unchanged, there would be no change to the level of traffic entering and leaving the Warner Valley.

Relocation of the fee station (with provision for three parking spaces) would have a local, long-term, moderate, beneficial impact on traffic flow because it would eliminate a potential

conflict point that occurs whenever different drivers choose to take different (potentially conflicting) actions (i.e., stop their vehicles in the road, or park at the ranger station and walk back to access the fee station), and traffic flow in the entry area would be noticeably smoother than under Alternative 1.

Proposed actions to improve the delineation of parking spaces in the Warner Valley area would have a local, long-term, moderate, beneficial impact on traffic flow because drivers would be able to maneuver more predictably than under Alternative 1.

Construction of a new access road to the water tank at the ranger station would have a local, long-term, minor, beneficial impact on traffic flow because vehicle access to and from the tank would be seen as such (i.e., not as a road to a visitor destination, as it would under Alternative 1).

Operation-related Effects on Traffic Safety/Conflicts

As they would for traffic flow conditions, relocation of the fee station (with parking spaces), and improved delineation of parking spaces, would have a local, long-term, moderate, beneficial impact on traffic safety because it would eliminate the potential conflict points. Similarly, construction of a new access road to the water tank at the ranger station would have a local, long-term, minor, beneficial impact on traffic safety.

Leaving the alignment of Warner Valley Road unchanged would have a local, long-term, moderate, adverse impact because the current blind curve would continue to be a potential traffic hazard conflict point.

Cumulative Impacts

The basis of cumulative effects to transportation discussed herein is the same as for Alternative 1. Forest thinning for fire breaks will increase the line of sight and lessen both the hazard of deer crossing and oncoming vehicles.

Conclusion

The Preferred Alternative 2 would have a short-term, minor to moderate, adverse effect, and a long-term, minor to moderate, beneficial effect. Alternative 2 would cause short-term, minor to moderate, adverse impacts (after mitigation) during site redevelopment; long-term, moderate, beneficial impacts to traffic flow conditions; and long-term, minor, beneficial effects on traffic safety/conflicts.

Analysis of Environmental Consequences – Alternative 3

Transportation

Analysis

Construction-related Transportation Effects

Under Alternative 3, the adverse construction-related impacts on transportation conditions would be largely the same as described under Alternative 2. As described under Alternative 2, there would be local, short- and long-term, moderate, adverse impacts to transportation conditions during intense construction periods under Alternative 3. Adverse construction-related transportation impacts would primarily relate to temporary delays on Warner Valley Road. As with Alternative 2, vehicle trips generated by the construction activities would have readily apparent, but localized and short-term, adverse impacts on traffic flow and traffic safety in the project area. The adverse transportation impacts associated with the less intensive construction efforts also would be similar to those described under Alternative 2.

Although there would be minor differences in the construction phasing, the overall magnitude and nature of adverse impacts associated with construction activities would be similar to those described for Alternative 2. Alternative 3 would implement similar mitigation measures as those discussed under Alternative 2; these measures would somewhat lessen the adverse construction-related impacts to traffic flow and traffic safety, but would not change the magnitude of the adverse effects.

Operation-related Effects on Traffic Flow Conditions

The number of lodging and camping units will be slightly less, but parking spaces would be the same as under Alternative 2. It is not expected that there would be any change to the level of traffic entering and leaving the Warner Valley.

Like Alternative 2, Alternative 3 would have a local, long-term, moderate, beneficial impact on traffic flow because of the relocation of the fee station (with provision for three parking spaces), which would eliminate a potential conflict point that occurs whenever different drivers choose to take different (potentially conflicting) actions (i.e., stop their vehicles in the road, or park at the ranger station and walk back to access the fee station), and traffic flow in the entry area would be noticeably smoother than under Alternative 1.

Also like Alternative 2, Alternative 3 would have a local, long-term, moderate, beneficial impact on traffic flow because of the proposal to improve the delineation of parking spaces in the Warner Valley area, which would enable drivers to maneuver more predictably than under Alternative 1.

The proposed chain to control access to the water tank at the ranger station would have a local, long-term, minor, beneficial impact on traffic flow because it would provide a clearer message to visitors as to the road’s purpose (i.e., not as a road to a visitor destination, as it would under Alternative 1).

Operation-related Effects on Traffic Safety/Conflicts

Like Alternative 2, relocation of the fee station (with parking spaces) and improved delineation of parking spaces under Alternative 3 would have a local, long-term, moderate, beneficial impact on traffic safety because it would eliminate the potential conflict points. Similarly, the proposed chain to control access to the water tank at the ranger station would have a local, long-term, minor, beneficial impact on traffic safety.

As opposed to Alternative 2 (which would leave the entry road as is), Alternative 3 would have a local, long-term, moderate, beneficial impact on traffic safety because widening the current blind curve would improve the line of sight for drivers, reducing the potential traffic hazard conflict point.

Cumulative Impacts

The basis of cumulative effects to transportation discussed herein is the same as for Alternative 1. Forest thinning for fire breaks will increase the line of sight and lessen both the hazard of deer crossing and oncoming vehicles.

Conclusion

Alternative 3 would have a short-term, minor to moderate, adverse effect, and long-term, moderate, beneficial effect. Alternative 3 would cause short-term, minor to moderate, adverse impacts (after mitigation) during site redevelopment; and long-term, moderate, beneficial impacts to both traffic flow and traffic safety/conflicts.

4.9 Scenic Resources

Methodology

Context, duration, and intensity together determine the level of impact for an activity. It may be necessary to evaluate all three factors together to determine the level of impact of scenic resources. In the case of scenic resources, it is difficult to determine whether a particular action would be considered adverse or beneficial, given the subjective nature of evaluating visual stimuli. For the purpose of this analysis, an action shall be considered beneficial if it reduces the visual presences of man-made structures or influences. An action shall be considered adverse if it alters existing natural resources or increases the visual presence of man-made structures.

The methodology used to assess impacts on scenic resources in this document is consistent with National Park Service *Management Policies 2006* and the *Cultural Landscape Report for Drakesbad Guest Ranch (CLR).* The Viewshed Management Recommendations from the CLR include:

- Preserve and maintain historic views through the meadow by selective thinning and/or removal of vegetation in consultation with natural resources staff.
- Prepare a Vegetation Management Plan for the meadow to address treatment strategies that balance natural resource objectives and cultural resource values for long-term preservation of the historic scene.

The Cultural Landscape Report identified three critical viewsheds for Drakesbad Guest Ranch: (1) the view from the trail looking across the upper meadow to the west end of the meadow; (2) the view from the east side of the Lodge to Mount Harkness; and (3) the view from the pool to the lodge. In order to frame the impacts on scenic resources, this section will evaluate impacts to these three viewsheds as well as the view of the night sky. This will allow an approximation of how Warner Valley's scenic resources would change should any of the proposed alternatives be carried out.

Scenic Resources

National Park Service *Management Policies 200*6 state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the National Park Service is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks.

The potential for change in scenic resources proposed by the alternatives was evaluated by identifying projected changes in natural and built features, and determining whether or how these projected changes would affect the area's scenic resources, to what degree, and for what duration.

Impact intensity	Impact Description
Negligible	Effects to the visual quality of the landscape would be at or below the level of detection; changes would be so slight that they would not be of any measurable or perceptible consequence to the visitor experience.
Minor	Effects to the visual quality of the landscape would be detectable, localized, and would be small and of little consequence to the visitor experience. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	Effects to the visual quality of the landscape would be readily detectable, with consequences at the regional level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Effects to the visual quality of the landscape would be obvious, with substantial consequences to the visitor experience in the region. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Duration:
Short-term – Occurs only during the construction period.
Long-term – Effects continue after the construction period.

Type:
Beneficial – Effects that would improve views or would reduce the appearance of built features of the project area.
Adverse – Effects that would degrade views or would increase the appearance of built features in the project area.

Analysis of Environmental Consequences – Alternative 1 (No Action)

Scenic Resources

Analysis

Under Alternative 1, none of the facilities of the proposed project would be implemented. Existing visual impacts to the historic viewshed would not be removed. However, the continued effort to dry out the Drakesbad Meadow could lead to minor tree encroachment and decreased views. With no action, noncontributing resources that are within the historic viewshed will continue to impact the scenic resources.

Cumulative Impacts

Cumulative effects to scenic resources discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. In the past, views were maintained through vegetation management and land use practices (grazing) by the Siffords throughout the period of significance. In the present changes in management strategies of the meadow have resulted in vegetation growth that is impacting the historic views. In the future, there are no plans that are likely to significantly alter the viewshed. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Alternative 1 would result in long-term, minor, adverse effect to existing conditions.

Impairment: The changes which would occur to scenic resources under Alternative 1 would not rise to the level of impairment. There would be no change to the natural and cultural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of scenic resources or values under Alternative 1.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Scenic Resources

Analysis

Under Alternative 2, there would be a significant difference between operational impacts on the scenic viewsheds and construction related impacts on the scenic viewsheds. Operational impacts on scenic resources would be minor, long-term and beneficial while construction impacts would be moderate, short-term and adverse.

Construction Impacts

Alternative 2 would require extensive construction throughout the project site. Construction occurring at the campgrounds, concessioners housing and bathhouse would cause visual disruptions in those areas but would not have visual impacts for the critical viewsheds. The view to Drakesbad Guest Ranch and the view of Drakesbad Meadow will experience construction related impacts.

The view to Drakesbad Guest Ranch across the meadow will experience a moderate, short-term and adverse impact. Equipment required to improve that pathway will be highly visible. Similarly, trail improvements across the fen will be highly visible. As such, the view of Drakesbad Meadow will experience a moderate, short-term and adverse impact.

Operational Impacts

There are proposed changes in Warner Valley that will affect viewsheds at the project site. These impacts are discussed below according to which of the viewsheds they will impact.

> *View to Mount Harkness*. The view to the east of the lodge up to Mount Harkness will be improved by the removal of the volleyball court and the improvement of the road to the bathhouse.
>
> *View to Drakesbad Guest Ranch*. The view of Drakesbad Guest Ranch from the pool would be improved with the removal of noncontributing features such as the volleyball court and the reduction of the pool access road width.
>
> *View of Drakesbad Meadow*. This alternative would restore fen ecology to the meadow through filling man-made features with fill materials. As a result some additional

boardwalk trails similar to the trail from the corral to the fen may need to be installed. The restoration would result in a negligible impact to the historic viewshed.

View of Night Sky. Alternative 2 would potentially add external lighting to the existing lighting at the Drakesbad Guest Ranch and campground. However NPS policies for maintaining dark night skies will be adhered to with any new proposed lighting.

Cumulative Impacts

Cumulative effects to scenic resources discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. In the past, views were maintained through vegetation management and land use practices (grazing) by the Siffords throughout the period of significance. In the present changes in management strategies of the meadow have resulted in vegetation growth that is impacting the historic views. In the future, there are no plans that are likely to significantly alter the viewshed. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

The proposed project will have a beneficial impact on Warner Valley's scenic resources. The removal of noncontributing features will preserve the historic viewshed of Drakesbad Guest Ranch and the view to Mount Harkness. The view of the night sky will continue to be relatively unobscured by external lighting. Consequently, the overall impact on scenic resources in Warner Valley is long-term, moderate, and beneficial under Alternative 2.

Impairment: Under Alternative 2, the impact to scenic resources would not result in impairment. There would be no change to the natural and cultural integrity of the park, nor effects to the resource values highlighted in the 2002 General Management Plan. Therefore there would be no impairment of scenic resources or values from the actions in Alternative 2.

Analysis of Environmental Consequences – Alternative 3

Scenic Resources

Analysis

Construction Impacts

Alternative 3 would require extensive construction in the Drakesbad Guest Ranch area and the Dream Lake Dam area of the project site. Construction occurring at the campgrounds, concessioners housing and bathhouse would cause visual disruptions in those areas but would not have visual impacts for the critical viewsheds. The view to Drakesbad Guest Ranch will experience construction related impacts.

The view to Drakesbad Guest Ranch across the meadow will experience a moderate, short-term and adverse impact. Equipment required to install culverts and check dams will be visible. This

alternative also proposes to reconstruct the dam at Dream Lake. Dam reconstruction will require that 32 trees be removed prior to construction. Additionally, heavy equipment will be needed to complete the construction.

Operational Impacts

There are proposed changes in Warner Valley that will alter the historic viewsheds at the project site. These impacts are discussed below according to which of the viewsheds they will impact.

View to Mount Harkness. The view to the east of the lodge up to Mount Harkness will be improved by the removal of the volleyball court and the improvement of the road to the bathhouse.

View to Drakesbad Guest Ranch. The view of Drakesbad Guest Ranch from the pool would be improved with the removal of noncontributing features such as the volleyball court and the reduction of the pool access road width.

View to Drakesbad Meadow. In this alternative, measures to be implemented include the installation of metal check dams at key points in drainage ditches as well as the installation of culverts. The restoration would result in a negligible impact to the historic viewshed.

View of Night Sky. Alternative 3 would potentially add external lighting to the existing lighting at the Drakesbad Guest Ranch and campground. NPS policies for maintaining dark night skies will be adhered to with any new proposed lighting.

Cumulative Impacts

Cumulative effects to scenic resources discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. In the past, views were maintained through vegetation management and land use practices (grazing) by the Siffords throughout the period of significance. In the present changes in management strategies of the meadow have resulted in vegetation growth that is impacting the historic views. In the future, there are no plans that are likely to significantly alter the viewshed. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

The proposed project will have a beneficial impact on Warner Valley's scenic resources. The removal of noncontributing features will preserve the historic viewshed of Drakesbad Guest Ranch and the view to Mount Harkness. The view of the night sky will continue to be relatively unobscured by external lighting. Consequently, the overall impact on scenic resources in Warner Valley is long-term, moderate and beneficial under Alternative 3.

Impairment: Under Alternative 3, the impact to scenic resources would not result in impairment. There would be no change to the natural and cultural integrity of the park, nor effects to the resource value highlighted in the 2002 General Management Plan. Therefore there would be no impairment of scenic resources or values from the actions in Alternative 3.

4.10 Park Operations and Facilities

Methodology

The impact analysis is based on the current description of park operations presented in Chapter 3, Affected Environment. Park operations, for the purpose of this analysis, refers to the quality and effectiveness (including the frequency or complexity of maintenance requirements) of the infrastructure used in the operation of the park to adequately protect and preserve vital resources and provide for an effective visitor experience. This includes consideration of the condition and usefulness of the facilities used to support the operations of the park. Facilities included in this project encompass the park facilities in the Warner Valley area.

The potential for change in park operations and facilities proposed by the alternatives was evaluated by identifying projected changes in park operations and facilities, and determining whether or how these projected changes would affect the desired park operations and facilities, to what degree, and for what duration.

Impact intensity	Impact Description
Negligible	Park operations would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on park operations.
Minor	Changes in park operations and facilities would be detectable and would be of a magnitude that would not have an appreciable effect on park operations.
Moderate	Changes in operations and facilities would be readily apparent and result in a substantial change that would be noticeable to staff and the public. Mitigation measures would be necessary to offset adverse effects and would likely be successful.
Major	Changes in park operations and facilities would be readily apparent, result in a substantial change in park operation in a manner noticeable to staff and the public, and be markedly different from existing operations. Mitigation measures to offset adverse effects would be needed, extensive, and success could not be guaranteed.

Duration:
Short-term – Effects lasting for the duration of the treatment action.
Long-term – Effects lasting longer than the duration of the treatment action.

Type:
Beneficial – Effects that would increase the quality and/or effectiveness, or reduce maintenance requirements, of park infrastructure and facilities, or that enhance the effectiveness of park staff in fulfilling their responsibilities.
Adverse – Effects that would decrease or limit the quality and effectiveness of park infrastructure; would increase the frequency or difficulty of infrastructure maintenance requirements; or would not change existing safety concerns with respect to Warner Valley-area utility and facility infrastructure.

Analysis of Environmental Consequences – Alternative 1 (No Action)

Park Operations and Facilities

Analysis

The no action alternative, or no change in the existing conditions of the park operations and facilities at Warner Valley, would result in a continuation of existing impact and use by staff and visitors of the infrastructure and facilities of the park. Without changes to the existing conditions, safety for the guests and park staff will continue to have an adverse effect. The existing design and layout of the entry way, and deteriorating conditions of the park's facilities has lead to moderate safety hazards if no changes are made. The dining hall outdoor area does not have a firm surface and is not ADA accessible. Impacts from the horse corral include effluent flows into the meadow, seed from non-native grasses from the hay, wildlife attractants, and foul smells will continue to plague this area. The employee housing will continue to have a lack of privacy and social space. Walkways and trails throughout Warner Valley may continue to multiply creating more negative impact on the natural resources and do not follow the historic path alignments. The access trail/road to the pool and bathhouse and the trail from Drakesbad Guest Ranch leading from the corral to the trail network both create an obstruction to water flow in the meadow/fen complex. The volleyball court detracts from the experience of the cultural landscape and is currently located in the sensitive meadow landscape.

Energy and Conservation Potential

The existing conditions under the no action alternative do not incorporate energy efficient conservation measures.

Cumulative Impacts

A major source of impacts to the operations and facilities is the continued use of this site in its existing condition by visitors and staff. Cumulative effects to park operations and facilities discussed herein are based on analysis of past, present, and reasonably foreseeable future actions in the Warner Valley area of Lassen Volcanic National Park, in combination with potential effects of this alternative. The water and sewer systems were rebuilt by NPS in the 1990s, therefore, the Park anticipates several decades of low maintenance of these systems. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

If no change occurs in the existing conditions of the park operations and facilities, adverse impact of both natural and cultural resources is likely to occur. The impact of this alternative on park operations and facilities would be primarily localized and the effect would not be considered severe. Over time, conditions would continue to be degraded. The no-action alternative would have a long-term, moderate, adverse effect.

Analysis of Environmental Consequences – Alternative 2 (Preferred Alternative)

Park Operations and Facilities

Analysis

Alternative Two (the preferred alternative) would result in changes in existing conditions of the park operations and facilities that would protect and repair the natural and cultural resources and promote public safety through design. It may also result in a minor short-term, adverse effect due to the construction activity associated with the re-design. The re-design will also result in the removal of five trees in the entry area. This alternative will improve the park operations and facilities that will preserve the historic character of the park, protect and restore the natural resources, and provide a more accessible facility. Relocating the Warner Valley entrance and constructing a new service road to the water tank at the ranger station will improve the operation of the fee collection and safety at the entrance. Renovations to the campgrounds will improve ADA compliance and accessibility, as well as provide for restoration opportunities in the lower campground. Parking capacity will be increased and the concessioner housing and service center will be improved. The new center will be outside of the historic district and redesigned with more space for employees and a more organized arrangement of facilities. The new service center buildings and utility extensions will require an increase in operations and maintenance costs and therefore a minor adverse impact. Other benefits to the park operations and facilities include the existing problems with the corral with effluent mitigation through a bio-filtration system and enclosing the feed shed. The volleyball court will be removed and the area restored with native vegetation. Several features will be redesigned for accessibility including the pool shower area, the outdoor dining area, and the upper campground. Removal of Dream Lake Dam will eliminate the operations and maintenance costs associated with the upkeep of the dam.

Energy and Conservation Potential

Under this alternative energy and conservation potential would be incorporated into the bathhouse reconstruction. A new rooftop photovoltaic array would provide electricity for running pumps and a new solar/geothermal water heating system would supplement or replace propane-fired water heaters. The hybrid power systems will require an increase in operations and maintenance. Both systems would be located on the south side of the bathhouse roof, facing away from Drakesbad Guest Ranch, and would maintain current roof color and design. It may be possible to use water from the hot springs in a heat exchanging system to heat the water for restrooms and showers. At Drakesbad Guest Ranch, a hybrid power system including photovoltaic panels and a propane generator would be incorporated into the reconstruction.

Cumulative Impacts

The basis of cumulative effects to park operations and facilities discussed herein is the same as for Alternative 1. The water and sewer systems were rebuilt by NPS in the 1990s, therefore, the Park anticipates several decades of low maintenance of these systems. Given the isolated nature

of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Alternative 2 would have a long-term, moderate, beneficial effect. The impact of this alternative on park operations and facilities would be primarily localized and the effect would not be considered severe. Removal of trees and other construction-related impacts would result in short-term, moderate, adverse effects.

Analysis of Environmental Consequences – Alternative 3

Park Operations and Facilities

Analysis

In Alternative 3, the entrance fee area would be reconfigured with the iron ranger moved adjacent to the ranger station. This design would not remove any trees for its construction. The service road to the water tank would remain, but a chain gate across the entry would divert cars from using it mistakenly. This design would also install a culvert to decrease erosion. The following changes will occur to the park operations and facilities: construction of a two-story building for the employee housing; moving the corral structure and feeding area to north of Warner Valley Road; removing the outdoor dining area entirely, closing of lower campground facilities, and replacing the existing Dream Lake Dam with a new dam structure. There will be a reduction of the number of campsites in Alternative 3, but other modifications to the trail and day use parking and concessioner area and service center will be identical to Alternative 2. The new service center buildings and utility extensions will require an increase in operations and maintenance costs and therefore a minor adverse impact.

Energy and Conservation Potential

Under this alternative, the bathhouse reconstruction will incorporate a new rooftop photovoltaic array to provide electricity for running pumps and a new solar water heating system would supplement or replace propane-fired water heaters. The hybrid power systems will require an increase in operations and maintenance. Both systems would be located on south side of the bathhouse roof, facing away from Drakesbad Guest Ranch, and would maintain current roof color and design.

Cumulative Impacts

The basis of cumulative effects to park operations and facilities discussed herein is the same as for Alternative 1. The water and sewer systems were rebuilt by NPS in the 1990s, therefore, the Park anticipates several decades of low maintenance of these systems. Given the isolated nature of the Warner Valley area, there are no other past, present, and reasonably foreseeable future actions to analyze.

Conclusion

Alternative 3 would have an overall long-term, moderate, beneficial effect.

4.11 Mitigation Measures for all Action Alternatives

Impact Resource Area	Mitigation Measures
Federal and State Permit Requirements	The NPS will apply for and comply with all federal and state permits required for construction-related activities prior to project construction.
Construction Measures	Prior to entry into the park, steam-clean heavy equipment to prevent importation of non-native plant species, tighten hydraulic fittings, ensure hydraulic hoses are in good condition and replace if damaged, and repair all petroleum leaks.
	Inspect the project to ensure that impacts stay within the parameters of the project area and do not escalate beyond the scope of the environmental assessment, as well as to ensure that the project conforms with all applicable permits or project conditions. Store all construction equipment within the delineated work limits. Confine work areas within creek channels to the smallest area necessary.
	Implement compliance monitoring to ensure that the project remains within the parameters of National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance documents.
	Provide a project orientation for all construction workers to increase their understanding and sensitivity to the challenges of the special environment in which they will be working.
	If deemed necessary, demolition/construction work on weekends or federal government holidays may be authorized, with prior written approval of the Superintendent.
	Remove all tools, equipment, barricades, signs, surplus materials, and rubbish from the project work limits upon project completion. Remove all debris from the project site, including all visible concrete, timber, and metal pieces.
	Cover and/or seal truck beds and stockpiles to minimize blowing dust or loss of debris.
	Maintain adequate dust suppression equipment and using clean water to control excess airborne particulates at staging areas, active construction zones, and unpaved roads leading to/from active construction areas.
	Develop an emergency notification plan that complies with park, federal, and state requirements and allows contractors to properly notify park, federal, and/or state personnel in the event of an emergency during construction activities. This plan will address notification requirements related to fire, personnel, and/or visitor injury, releases of spilled material, evacuation processes, etc. The emergency notification plan will be submitted to the park for review/approval prior to commencement of construction activities
	Limit truck and related construction equipment speeds in active construction areas to a maximum of 15 miles per hour and strictly adhering to park regulations and posted speed limits in other areas while inside park boundaries.
Air Pollutant Emissions Reduction	Contractors will use the following best management practices as appropriate: • Visible emissions from all heavy duty off road diesel equipment should not exceed 20 percent opacity for more than three minutes in any hour of operation; • Consider, where appropriate, particle traps and other appropriate controls such as specialized catalytic converters to reduce emissions of diesel particulate matter (DPM) and other air pollutants; • After June 2010, use diesel fuel with a sulfur content of 15 parts per million or less, or other suitable alternative fuel that substantially reduces DPM emissions; • Minimize construction equipment idling time by turning off engines when vehicles are stopped for more than a few minutes; • Use newer, cleaner equipment (1996 or newer model);

Impact Resource Area	Mitigation Measures
Air Pollutant Emissions Reduction (cont.)	• Employ periodic, unscheduled inspections to ensure that construction equipment is properly maintained at all times and does not unnecessarily idle, is tuned to manufacturer's specifications, and is not modified to increase horsepower except in accord with established specifications; and • Minimize construction-related trips of workers and equipment, including trucks and heavy equipment.
Geologic Resources and Hazards	An Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan shall be prepared by the Construction Contractor for the project to address hazardous materials storage, spill prevention and response. The Plan shall be submitted for park review and approval prior to construction.
	Store and use all hazardous materials in compliance with federal regulations. All applicable Materials Safety Data Sheets will be kept on site for inspection.
	Hazardous or flammable chemicals shall be prohibited from storage in the staging area, except for those substances identified in the Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan. Hazardous waste materials shall be immediately removed from project site in approved containers.
	Comply with all applicable regulations and policies during the removal and remediation of asbestos, lead paint, and polychlorinated biphenyls.
	Develop and implement a comprehensive spill prevention/response plan that complies with federal and state regulations and addresses all aspects of spill prevention, notification, emergency spill response strategies for spills occurring on land and water, reporting requirements, monitoring requirements, personnel responsibilities, response equipment type and location, and drills and training requirements. The spill prevention/response plan will be submitted to the park for review/approval prior to commencement of construction activities.
	To minimize the possibility of hazardous materials seeping into soil or water, check equipment frequently to identify and repair any leaks. Standard measures include hazardous materials storage and handling procedures; spill containment, cleanup, and reporting procedures; and limitation of refueling and other hazardous activities to upland/nonsensitive sites. Provide an adequate hydrocarbon spill containment system (e.g., absorption materials, etc.) on site, in case of unexpected spills in the project area. Ensure equipment is equipped with a hazardous spill containment kit. Ensure that personnel trained in the use of hazardous spill containment kits are on site at all times during construction activities.
Hydrology and Water Quality	Use approved siltation and sediment control devices in construction areas to reduce erosion and surface scouring.
	Use approved siltation and sediment control devices appropriate to the situation in grading areas to capture eroding soil before discharge to riparian channels.
	Conserve and salvage topsoil for reuse. Materials will be reused to the maximum extent possible.
	Develop and implement a comprehensive stormwater pollution prevention plan for construction activities that complies with federal and state regulations and addresses all aspects of stormwater pollution prevention. The plan will be submitted to the park for approval prior to construction activities. The plan will include measures such as: controlling erosion, sedimentation, and compaction, and thereby reducing water pollution and adverse water quality effects; and using silt fences, sedimentation basins, etc. in construction areas to reduce erosion, surface scouring, and discharge to water bodies.
	To the extent possible, schedule the use of mechanical equipment during periods of low precipitation to reduce risk of accidental hydrocarbon leaks or spills. When mechanical equipment is necessary outside of low precipitation periods, use NPS–approved methods to protect soil and water from contaminants.
	Dispose of volatile wastes and oils in approved containers for removal from construction sites to avoid contamination of soils, and drainages. Inspect equipment for hydraulic and oil leaks prior to use on construction sites, and implement inspection schedules to prevent contamination of soil and water Keep absorbent pads, booms, and other materials on site during projects that use heavy equipment to contain oil, hydraulic fluid, solvents, and hazardous material spills

Impact Resource Area	Mitigation Measures
Vegetation	Replace vegetation removed with appropriate species grown from seeds or cuttings collected in Warner Valley.
Wetlands	Avoid all existing wetland areas to the extent feasible; clearly demarcate wetlands prior to construction in their vicinity.
	Protect wetland areas during construction through the use of best management practices (BMPs) such as erosion control fencing or wattles.
	Restore all wetland areas impacted during construction to natural conditions using native stock.
	Heavy equipment required for Dream Lake dam removal and replacement should be airlifted into the project site; brought in over a temporary platform road through Drakesbad Meadow; or brought in over the snow, prior to complete snowmelt and ground thaw to minimize impacts to wetlands and vegetation.
Wildlife	Survey for nesting raptors and passerine birds prior to construction.
	Use standard BMPs to protect wildlife during construction, i.e., place ramps in trenches to allow egress, establish no disturbance buffers if active bird nests are found.
Special-status Species	Survey for nesting special-status birds prior to construction.
	Survey for special-status bat maternity colonies prior to construction.
	Survey for special-status plants prior to work in Drakesbad Meadow, other wetlands, and in riparian areas.
	Inform Park Biologist immediately of any special-status species sightings. Stop work if there is potential threat to species.
Soundscapes	Ensure that all construction equipment has functional exhaust/muffler systems.
	Submit a construction work plan/schedule that minimizes construction-related noise in noise-sensitive areas to the park for review/approval prior to commencement of construction activities.
	Use hydraulically or electrically powered construction equipment, when feasible.
	Locate stationary noise sources as far from sensitive receptors as possible.
	Limit the idling of motors except as necessary (e.g., concrete mixing trucks).
	To the extent possible, perform all on-site noisy work above 76 A-weighted decibels (dBA) (such as the operation of heavy equipment) during normal construction hours to minimize disruption to nearby park users. Normal construction work hours on contracts and day labor projects in the park are between 7:00 am and 5:30 pm, Monday through Friday, and requests for extended hours or weekends must be approved by the superintendent.
Cultural Resources	A qualified archeologist, as directed by the Secretary of the Interior and National Park Service standards, will monitor construction activities, especially those that have a potential to affect cultural features.
	If additional, previously unknown cultural resources are encountered during construction, temporarily suspend work in the immediate area to document discovered resources according to National Park Service standards.
	Should presently unidentified archeological resources be discovered during construction, work in that location would be halted, the park Cultural Resources Program Manager contacted, the site secured, and the park would consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1990. Any archeological site would be properly recorded by an archeologist and evaluated under the eligibility criteria of the National Register of Historic Places.
	If the resources are determined eligible, appropriate measures would be implemented either to avoid further resource impacts or to mitigate their loss or disturbance (e.g., by data recovery excavations or other means) in consultation with the California State Historic Preservation Office.

Impact Resource Area	Mitigation Measures
Cultural Resources (cont.)	In compliance with the Native American Graves Protection and Repatriation Act of 1990, the NPS would also notify and consult concerned Native American representatives for the proper treatment of human remains, funerary and sacred objects, should these be discovered during the course of the project.
	Conduct site-specific reconnaissance for cultural resources to avoid potential impacts to resources that may occur as a result of the removal of trees and vegetation conducted for the maintenance of the view corridors.
	Design all new construction within historic districts or adjacent to historic sites to be compatible in terms of architectural elements, scale, massing, materials, and orientation.
	Install interpretive signs about Native American use of Warner Valley
	Undertake all treatments within cultural landscapes in keeping with the *Secretary of The Interior's Standards for the Treatment of Historic Properties.*
	Install interpretive signs highlighting the significance of the Drakesbad Guest Ranch Historic District and Dream Lake Dam.
Visitor Experience	Develop and implement a visitor outreach and communication plan that addresses means for effectively communicating construction and other visitor facility closure, relocation, and detour schedules to the public.
	To the extent possible, schedule/phase construction activities to allow for continued visitor access to the Drakesbad Guest Ranch and its associated facilities.
	Schedule construction activities that would interrupt operations at visitor serving, orientation, and interpretation facilities (food service, retail, tour, activity desk, information kiosk, and interpretive programming) during lower visitor-use periods (late fall and winter), to the extent possible.
Public Health and Safety	Outline measures to largely offset the potential for public exposure to noxious materials or contaminants that may be present during construction in the project area (i.e., by providing established and maintained walkways and bridges across the site, covering walking paths with clean soil and asphalt, and providing barrier fencing along trails).
	Provide protective fencing enclosures around construction areas, including utility trenches, to protect public health and safety.
Transportation	Develop and implement a comprehensive traffic control and visitor protection plan for park review/approval that: • Complies with necessary U.S. Department of Transportation, Federal Highway Administration Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI-Traffic Control for Construction and Maintenance Operations, and California Department of Transportation Standard Specifications, Section 12; • Provides procedures for preparing and submitting specific road closure, traffic control, and detour plans for each specific area of project construction not less than three weeks before commencement of construction activities in each area; • Provides procedures for managing staging areas to restrict public access and maintain site safety; and • Ensures that visitors are safely and efficiently routed around construction areas in Warner Valley.
	Install appropriate traffic signs.
	Locate construction worker parking outside of Warner Valley, with the exception of key supervisory personnel.

Impact Resource Area	Mitigation Measures
Scenic Resources	To the extent possible, schedule necessary 24-hour construction activities in the immediate vicinity of campgrounds and lodging units such that they occur during periods when those areas are closed or not in use.
	Direct and shield night lighting associated with construction equipment to minimize light scatter effects.
	Design interior and exterior lighting in new or renovated facilities to prevent escaped light
	Use low-height, lighted bollards in parking areas in lieu of overhead pole lighting
	Use downward-facing and unobtrusive luminaries at facilities and building entrances and exits.
	If necessary NPS will conduct a view management assessment to ensure minimal impacts to viewsheds in Warner Valley.
Park Operations and Facilities	Develop and implement a comprehensive waste management plan that complies with federal and state regulations and addresses all aspects related to the transportation, storage, and handling of construction-related hazardous and nonhazardous liquid and solid wastes and submit the plan to the park for review/approval prior to the commencement of construction activities.
	Require construction personnel to adhere to park regulations concerning food storage and refuse management.
	Properly secure food waste during the workday and remove all food waste from site at the end of each workday.

CHAPTER 5
Consultation and Coordination

5.1 Public Scoping and Workshops

An informal scoping process for this Final Environmental Impact Statement (FEIS) was initiated on June 1, 2004 with the posting of an information sign at the Drakesbad Guest Ranch Lodge and a request for scoping comments. The formal scoping process was initiated on June 24, 2005 with the publication of the Notice of Intent to prepare a Draft EIS in the Federal Register. Scoping flyers were mailed to 1,131 individuals and organizations announcing the Draft EIS Notice of Intent; 15 written comments were received as a result of this mailing. Public scoping for the original Dream Lake Dam Management Plan was initiated on April 4, 2003 with the publication of the Notice of Intent to prepare a Draft EIS in the Federal Register. Nine-hundred letters announcing the Draft EIS Notice of Intent were sent and 100 scoping comments were received. All comments received from that scoping process have been considered in this current FEIS process. Public scoping meetings were held for the Dream Lake Management Plan November 4-7, 2002 in the towns of Chico, Red Bluff, Redding, and Chester. Public scoping meetings for the Warner Valley Comprehensive Site Plan were held on June 13-15, 2005 in the towns of Red Bluff, Chester, and Vacaville. All issues that were identified during the scoping process and that were received by October 14, 2005 have been included in this document.

5.2 Compliance with Federal or State Regulations

No permits would be required under the No Action Alternative. Regulatory responsibilities of the following agencies have been considered.

National Environmental Policy Act (NEPA). The National Environmental Policy Act process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. Regulations implementing the National environmental Policy Act are set forth by the Council on Environmental Quality.

National Park Service Management Policies. Management Policies is the basic policy document of the National Park Service, superseding the 1988 edition. This document is the highest of the three levels of guidance documents in the National Park Service Directives System provides policies applicable to management of the Nation Park System.

Endangered Species Act. The Endangered Species Act protects threatened and endangered species, as listed by the U.S. Fish and Wildlife Service, from unauthorized take and directs

federal agencies to ensure that their actions do not jeopardize the continued existence of such species. Section 7 of the act defines federal agency responsibilities for consultation with the U.S. Fish and Wildlife Service and requires a preparation of a biological assessment to identify any threatened or endangered species that is likely to be affected by the proposed action.

National Historic Preservation Act. The National Historic Preservation Act of 1966 requires federal agencies to consult with the state historic preservation officer (SHPO) if an undertaking would have the potential to affect properties listed or eligible for listing on the National Register of Historic Places.

The NPS submitted the draft Warner Valley EIS to the California SHPO for review and comment on September 23, 2009. In this correspondence, NPS indicated that the proposed action will adversely affect the Drakesbad Guest Ranch Historic District, which is listed on the National Register of Historic Places. In addition, adverse affects to other historic properties including archaeological sites are possible from the proposed action; however, detailed design information was insufficient for NPS to make a final determination of effect in accordance with section 800.8 of the Advisory Council on Historic Preservation's (ACHP) regulations (36 CFR Part 800). As such, the NPS has prepared a Programmatic Agreement with the ACHP and the California SHPO that outlines a specific process for mitigating adverse effects to the Drakesbad Guest Ranch Historic District pursuant to 36 CFR 800.14(b). This Programmatic Agreement also outlines the specific process whereby NPS will consult with the California SHPO on each undertaking to be implemented as part of the Final EIS. The draft Programmatic Agreement is located in Appendix C of the Final EIS.

Executive Order 11990: Protection of Wetlands. This executive order established the protection of wetlands and riparian systems as the official policy of the federal government. It requires all federal agencies to consider wetland protection as an important part of their policies and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.

National Park Service Procedural Manual #77-1: Wetland Protection. This procedural manual was developed for use by the National Park Service in carrying out its responsibilities under Executive Order 11990 to protect wetlands. This manual also specifies which actions are excepted from the Statement of Findings requirements. Section 4.2.1(h), outlines actions designed specifically for the purpose of restoring degraded (or completely lost) natural wetland, stream, riparian, or other aquatic habitats or ecological processes. For the purposes of this exception, "restoration" refers to reestablishing environments in which natural ecological processes can, to the extent practicable, function at the site as they did prior to the disturbance. Per this section, the project, is exempt from the Statement of Findings requirements.

Federal Clean Air Act. Section 118 of the Clean Air Act requires all federal facilities to comply with existing federal, state, and local air pollution control laws and regulation.

As required, the Park will obtain required permits or required approval and/or consultation from the following agencies:

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service – Section 7 consultation
- California Department of Fish and Game
- California State Historic Preservation Officer – Section 106
- Regional Water Quality Control Board
- Division of Safety of Dams

Annual consultation with tribes occurred in 2003 and 2004 with the Dream Lake Draft EIS. Annual consultation letters were sent in 2005 and 2006 describing the Warner Valley Comprehensive Site Plan as one of the ongoing park projects. Notices for public meetings were sent to park-associated tribes. The Park is in the process of consulting with four major tribes associated with Lassen Volcanic National Park: Pit River Tribe, Susanville Indian Rancheria, Greenville Rancheria of Maidu Indians, and Redding Rancheria.

5.3 List of Preparers

Louise Johnson, Lassen Volcanic National Park
Sean Eagan, Lassen Volcanic National Park
Nancy Nordensten, Lassen Volcanic National Park
Nancy Malone, Siegel and Strain
Darcey Rosenblatt, ESA
Erin Higbee, ESA
Kirstin Conti, ESA
Peter Hudson, ESA
Jack Hutchinson, ESA
Martha Lowe, ESA
Kim Maeyama, ESA

Acronym List

ADA: Americans with Disabilities Act
BMPs: best management practices
CBA: choosing by advantages
CDFG: California Department of Fish and Game
CEQ: Council on Environmental Quality
CNDDB: California Natural Diversity Database
CNPS: California Native Plant Society
dB: decibel
dBA: A-weighted frequency dependent scale
DO-12: NPS Director's Order #12
EIS: Environmental Impact Statement
FEIS: Final Environmental Impact Statement
FTA: Federal Transit Administration
GMP: General Management Plan
LAVO: Lassen Volcanic National Park
NEPA: National Environmental Policy Act
NPS: National Park Service
NWI: National Wetlands Inventory
PCT: Pacific Crest Trail

PGA: peak ground acceleration
PM10: Particulate matter
SHPO: State Historic Preservation Officer
USFWS: United States Fish and Wildlife Service
USGS: United States Geological Survey

Glossary

ADA-compliant: Facilities that are compliant with the Americans with Disabilities Act in ensuring equal opportunity for persons with disabilities in public accommodations.

Alternatives: Sets of management elements that represent a range of options for how, or whether to proceed with a proposed project. An environmental impact statement, such as the one in this Comprehensive Site Plan, analyzes the potential environmental and social impacts of the range of alternatives presented.

Beaver deceivers: Beaver deceiver devices are installed at culverts to prevent beavers from building dams but allow fish to pass through unimpeded. The beaver deceiver is essentially a wire mesh enclosure that is narrow at the culvert and widens upstream which prevents beavers from erecting a dam against culverts.

Bioengineering: A method of restoring and stabilizing sections of eroding stream bank with native riparian plant species in a layered method.

Biofiltration: A pollution control technique using living material to capture and biologically degrade process pollutants. The technology involves passing chemical-laden gases through a moist, porous medium containing active microorganisms.

Bone yard: Name of the location for storage of building materials and other supplies in Warner Valley.

Choosing by Advantages (CBA): A system of concepts and methods to structure decision-making. CBA quantifies the relative importance of non-monetary advantages or benefits for a set of alternatives and allows subsequent benefit and cost consideration during decision-making. CBA may be used as an evaluation method during the evaluation phase of the value analysis job plan, in lieu of the more traditional weighted-factor analysis. CBA is the preferred evaluation method where critical non-monetary benefits need to be evaluated.

Conifer: Any of a variety of mostly needle-leaved or scale-leaved, primarily evergreen, cone-bearing trees or shrubs such as pines, firs, and junipers.

Environmental Impact Statement (EIS): A public document required under the National Environmental Policy Act (NEPA) that identifies and analyzes activities that might affect the human and natural environment.

Fen: A type of wetland that is fed through surface water or groundwater with areas of peat soils and saturated conditions.

Hillslope: A hillside

Iron ranger: A fee collection box used at campgrounds, day-use facilities, etc. when those sites do not have full-time attendants.

National Environmental Policy Act (NEPA): The federal act that requires the development of an environmental assessment or environmental impact statement for federal actions that might have environmental, social, or other impacts.

National Historic Register: The National Park Service administers the National Register of Historic Places. The National Register is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. National Register properties have significance to the history of their community state, or the nation.

No Action Alternative: The alternative in a plan that proposes to continue current management direction. “No action” means the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.

Notice of Public Scoping: A notice to responsible agencies as well as the public and interested organizations requesting feedback and comments on an anticipated environmental project.

Photovoltaic: The process of converting sunlight into electricity through the use of solar cells.

Plumbing chase: A hollow wall area accommodating piping used for plumbing systems.

Pole barn structure: A barn that consists of a roof extended over a series of poles. Pole barn structures are generally rectangular and lack exterior walls.

Record of Decision (ROD): The public document describing the decision made on selecting the “preferred alternative” in an environmental impact statement. See “environmental impact statement.”

Distribution List

In addition to this list of agencies, Tribes and public libraries, the FEIS will be provided to those organizations and individuals requesting a copy.

Government Agencies

Bureau of Indian Affairs
Bureau of Land Management
California Air Resources Board

California Department of Fish and Game – Northern California North Coast Region
California Department of Transportation
California Highway Patrol
California Regional Water Quality Control Board
Feather River Recreation and Parks
Federal Emergency Management Agency
Lassen County Air Quality Management District
Lassen County Planning Department
Lassen County Sheriff
Lassen Historical Society
Lassen/Modoc California Department of Forestry and Fire Protection
Lassen National Forest
McArthur-Burney Falls Memorial State Park
Mt. Lassen Trout Farm
Northern Sierra Air Quality District
Park Rangers Association of California
Plumas County
Plumas County National Forest
Plumas County Sheriff
Redding Chamber of Commerce
Shasta County
Shasta County Air Quality Management District
Shasta County Sheriff
Soil Conservation Service
State Board of Forestry
State of California
Tehama County Air Quality Management District
Tehama County Sheriff
U.S. Army Corps of Engineers
U.S. Department of Interior – Bureau of Reclamation
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
U.S. Geological Survey
U.S. Geological Survey – Volcano Hazards Team

Tribes

Berry Creek Rancheria
Enterprise Rancheria
Greenville Rancheria
Mooretown Rancheria
Pit River Tribe
Redding Rancheria
Shingle Springs Rancheria
Susanville Rancheria

Libraries

Chester Library
Chico Public Library
Plumas County Library
Shasta County Library
Shingletown Library
Susanville District Library
Tehama County Library

CHAPTER 6
Comments and Responses

6.1 Public Review

On August 21, 2009, the *Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement* was released for public review in a formal 90-day comment period, closing on November 21, 2009. The Draft EIS was circulated to local, state, and federal agencies and to interested organizations and individuals to allow them to review and comment on the report. Publication of the Draft EIS in the Federal Register marked the beginning of the public comment period during which written comments were accepted. The NPS held three public open houses during the comment period on: September 2nd in Chester; September 3rd in Anderson; and September 8th in Vacaville. Copies of the Draft EIS were available for public review at the public open houses and an electronic version was made available at the National Park Service Planning, Environment and Public Comment (PEPC) website at: http://parkplanning.nps.gov/ and the Park's website: http://www.nps.gov/lavo/parkmgmt/index.htm.

6.2 Comments and Responses

6.2.1 Organization of Comments and Responses

Written comments received in response to the Draft EIS are addressed in this chapter. The original Draft EIS with modifications based on the comments received and the Response to Comments chapter together constitute the Final EIS (FEIS).

A total of 33 comment letters were received: one from a Native American Tribe, two from federal government agencies, two from state government agencies, one from a local government agency, one from an affiliated group, and 26 from non-affiliated individuals.

This chapter contains copies of the comments received during the comment period and responses to substantive comments. Each comment letter is coded with a letter (T) tribes; (F) federal government agency; (S) state government agency; (L) local government agency; (A) affiliated groups; and (NA) non-affiliated individuals. Each comment is numbered in the margin of the comment letter, and the responses to all of the comments in a particular letter follow that code. For examples, the letter from the tribe Greenville Rancheria is coded T_Greenville and each response in the margin is numbered: T_Greenville-1, T_Greenville-2, etc….In instances where a particular comment has been reiterated by another comment, the response may refer that commenter back to another letter's response.

The following is a list of all persons, organizations and agencies that submitted comments on the DEIS during the comment period and the page number in this chapter where they can be located:

Greenville Rancheria

P.O. Box 279 / 410 Main Street • Greenville, CA 95947 • 530.284-7990 • Fax 530.284-6612

November 2, 2009

Superintendent, Lassen National Park
P.O. Box 100
Mineral, CA 96063

Re: Warner Valley Draft EIS

Dear Sir or Madam:

I am writing this letter in order to formally submit comments in regards to the above mentioned DEIS. Upon reviewing all 3 alternatives in detail and their associated environmental consequences, we believe that Alternative 2 offers a reasonable balance between recreation opportunity and resource impacts. Although the Tribe would traditionally choose the Alternative that offers the highest level of protection to cultural and natural resources, we also understand that the National Parks are a precious commodity that many people visit to seek its beauty and solitude. We understand that changes must be made to benefit not only the public's experience but to the overall environmental health of the park. Therefore, although Alternative 2 probably contains a higher threat to archaeological resources due to ground disturbing activities, we can see that its benefits outweigh this risk. We would, however, appreciate your immediate notification in the event that remains are found in the course of work performance. T_Greenville-1

We appreciate your consultation efforts and would like to be kept advised as this project progresses. If there is any assistance that I can provide during this process, please do not hesitate to contact me.

Thank you,

Crista Stewart
Greenville Rancheria Environmental Director
cstewart@greenvillerancheria.com

Comment Letter T_Greenville Rancheria

T_Greenville-1

The commenter's preference for actions under Alternative 2 is noted. The commenter has requested immediate notification in the event that remains are found in the course of work performance. The Cultural Resources mitigation measures on page 4.11-3 of the EIS have been revised to include the following language:

> Should presently unidentified archeological resources be discovered during construction, work in that location would be halted, the NPS Cultural Resources Program Manager contacted, the site secured, and the NPS would consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1990. Any archeological site would be properly recorded by an archeologist and evaluated under the eligibility criteria of the National Register of Historic Places.
>
> If the resources are determined eligible, appropriate measures would be implemented either to avoid further resource impacts or to mitigate their loss or disturbance (e.g., by data recovery excavations or other means) in consultation with the California State Historic Preservation Office.
>
> In compliance with the Native American Graves Protection and Repatriation Act of 1990, the NPS would also notify and consult concerned Native American representatives for the proper treatment of human remains, funerary and sacred objects, should these be discovered during the course of the project.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

NOV 9 2009

Darlene M. Koontz, Superintendent
Lassen Volcanic National Park
P.O. Box 100
Mineral, CA 96063-0100

Subject: Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement (EIS), Lassen Volcanic National Park, California [CEQ #20090285]

Dear Ms. Koontz:

The U.S. Environmental Protection Agency (EPA) has reviewed the above referenced document. Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's (CEQ) NEPA Implementation Regulations at 40 CFR 1500-1508, and our NEPA review authority under Section 309 of the Clean Air Act.

EPA supports the objectives of this project and believes the proposed project will significantly improve the hydrologic and ecological processes and functions in the Warner Valley. We have, therefore, rated this Draft EIS as LO – Lack of Objections (see enclosed "Summary of Rating Definitions"). We offer the following recommendations, however, which we believe will help improve the project. F_EPA-1

Clean Water Act Section 404: The proposed restoration activities include breaching Dream Lake dam, filling ditches in Drakesbad Meadow, constructing/replacing culverts under roads to restore drainages, among others. It appears that these activities will involve disposal of dredged or fill material into waters of the U.S., but we understand the National Park Service (NPS) has not coordinated with the U.S. Army Corps of Engineers regarding compliance with Clean Water Act Section 404. The NPS should coordinate with the U.S. Army Corps of Engineers to determine if the proposed project requires a Clean Water Act Section 404 permit for these activities. Section 404 regulates the discharge of dredged or fill material into waters of the U.S., including wetlands and other "special aquatic sites." The Final EIS should address the following F_EPA-2

- Describe how the proposed project complies with Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the Clean Water Act. F_EPA-3
- Describe all waters of the U.S. that could be affected by the project, including acreages and channel lengths, habitat types, values, and functions of these waters. F_EPA-4
- Identify all required Federal and State permits for work potentially affecting wetlands or waters of the U.S. F_EPA-5

- Describe the projected habitat changes, including acreage changes in values and functions, in response to restoration activities (e.g., additional or improved acres of fens, change from lacustrine to riparian habitat at Dream Lake, improved flows in streams where culverts will be constructed or repaired, etc.). F_EPA-6
- Demonstrate there will be no net loss of wetlands under the proposed project. F_EPA-7

Air Pollutant Emissions Reduction: We recommend that NPS implement best practices to minimize exhaust emissions from construction equipment during the proposed project activities. Some best practices are listed below. The Final EIS should identify the best practices that will be implemented and adopted in the ROD.

- Visible emissions from all heavy duty off road diesel equipment should not exceed 20 percent opacity for more than three minutes in any hour of operation;
- Consider, where appropriate, particle traps and other appropriate controls such as specialized catalytic converters to reduce emissions of diesel particulate matter (DPM) and other air pollutants;
- After June 2010, use diesel fuel with a sulfur content of 15 parts per million or less, or other suitable alternative fuel that substantially reduces DPM emissions (see http://www.clean-diesel.org/nonroad.html);
- Minimize construction equipment idling time by turning off engines when vehicles are stopped for more than a few minutes;
- Use newer, cleaner equipment (1996 or newer model);
- Employ periodic, unscheduled inspections to ensure that construction equipment is properly maintained at all times and does not unnecessarily idle, is tuned to manufacturer's specifications, and is not modified to increase horsepower except in accord with established specifications;
- Minimize construction-related trips of workers and equipment, including trucks and heavy equipment.

F_EPA-8

We appreciate the opportunity to review this Draft EIS, and request a copy of the Final EIS when it is officially filed with our Washington, D.C., office. If you have any questions, please call me at (415) 972-3521 or call Jeanne Geselbracht at (415) 972-3853.

Sincerely,

Kathleen M. Goforth, Manager
Environmental Review Office

Enclosure: Summary of EPA Rating Definitions

Cc: Matt Kelly, U.S. Army Corps of Engineers – Redding, CA

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

Comment Letter F_Environmental Protection Agency

F_EPA-1

Comment noted.

F_EPA-2

The commenter advises that a Clean Water Act Section 404 permit may be required for some of the proposed activities and that this would require coordination with the U.S. Army Corps of Engineers. The NPS will coordinate with the U.S. Army Corps of Engineers once an alternative is selected and prior to permit applications. See also the response to S_RWQCB-1.

F_EPA-3

See response to F_EPA-2.

F_EPA-4

If a Section 404 permit is required, the following information will be addressed in the permit: Description of all waters of the U.S. that could be affected by the project including acreages and channel lengths, habitat types, values, and functions of these waters.

F_EPA-5

Once an alternative is selected, the NPS will identify all federal and state permits for work potentially affecting wetlands or waters of the U.S., which may include Section 404(b)(1).

F_EPA-6

If a Section 404 permit is required, the following information will be addressed in the permit: projected habitat changes, including acreage changes in values and functions.

F_EPA-7

If a Section 404 permit is required, the following information will be addressed in the permit: Demonstration of no net loss of wetlands under the proposed project.

F_EPA-8

In response to the commenter's recommendations, the following text will be added to page 4.11-1 of the FEIS, Mitigation Measures for all Action Alternatives:

> Contractors will use the following best management practices as appropriate:
>
> - Visible emissions from all heavy duty off road diesel equipment should not exceed 20 percent opacity for more than three minutes in any hour of operation;
> - Consider, where appropriate, particle traps and other appropriate controls such as specialized catalytic converters to reduce emissions of diesel particulate matter (DPM) and other air pollutants;
> - After June 2010, use diesel fuel with a sulfur content of 15 parts per million or less, or other suitable alternative fuel that substantially reduces DPM emissions;

- Minimize construction equipment idling time by turning off engines when vehicles are stopped for more than a few minutes;
- Use newer, cleaner equipment (1996 or newer model);
- Employ periodic, unscheduled inspections to ensure that construction equipment is properly maintained at all times and does not unnecessarily idle, is tuned to manufacturer's specifications, and is not modified to increase horsepower except in accord with established specifications; and
- Minimize construction-related trips of workers and equipment, including trucks and heavy equipment.

Comment Letter F_FEMA

U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

September 3, 2009

Superintendent
Lassen Volcanic National Park
P. O. Box 100
Mineral, California 96063

Dear Superintendent:

This is in response to your request for comments on the Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement (DEIS).

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Plumas (Community Number 060244), Maps revised March 2, 2005; County of Lassen (Community Number 060092), Maps revised November 21, 2001; County of Shasta (Community Number 060358), Maps revised June 16, 2006; and County of Tehama (Community Number 065064), May 4, 2009. Please note that the referenced Counties in the State of California are participants in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65. F_FEMA-1

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

F_FEMA-2

Comment Letter F_FEMA

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm. F_FEMA-2 cont.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Plumas County floodplain manager can be reached by calling Robert Perreault, Jr., Floodplain Administrator, at (530) 283-6268. The Lassen County floodplain manager can be reached by calling Steve Fuller, Building Official, at (530) 251-8143. The Shasta County floodplain manager can be reached by calling Patrick J. Minturn, Director, Department of Public Works, at (530) 225-5661. The Tehama County floodplain manager can be reached by calling John Stover, Building Official, at (530) 527-7002. F_FEMA-3

If you have any questions or concerns, please do not hesitate to call Patricia Rippe (Tehama and Plumas Counties) at (510) 627-7015 and/or Sarah Owen (Lassen and Shasta Counties) at (510) 627-7050 of the Mitigation staff.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

Comment Letter F_Federal Emergency Management Agency

F_FEMA-1

The NPS has reviewed the effective countywide Flood Insurance Rate Map (FIRM) for the County of Plumas (Community Number 060244). According to the index map for the region, the map for the project area 06063C0050E has no printed maps and therefore no flood zones.

F_FEMA-2

As described above, because no flood hazard analysis has been conducted within the project area, there is no designated regulatory floodway.

F_FEMA-3

Comment Noted. On February 25, 2010, the NPS confirmed the Plumas County floodplain maps do not identify the project area as a designated floodplain.

California Regional Water Quality Control Board
Central Valley Region
Karl E. Longley, ScD, P.E., Chair.

Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegg
Governor

415 Knollcrest Drive, Suite 100, Redding, California 96002
(530) 224-4845 • Fax (530) 224-4857
http://www.waterboards.ca.gov/centralvalley

2 September 2009

Ms. Darlene M. Koontz
Lassen Volcanic National Park
P.O. Box 100
Mineral, CA 96063

WARNER VALLEY COMPREHENSIVE SITE PLAN, DRAFT ENVIRONMENTAL IMPACT STATEMENT, LASSEN VOLCANIC NATIONAL PARK

This letter is to provide comments on the Draft Environmental Impact Statement for the Warner Valley Comprehensive Site Plan (plan). The plan contains many management elements to improve environmental conditions and visitor experience in Warner Valley. These comments are provided to assist the Park Service planning process for this project. The following plan elements have water quality concerns that need to be addressed:

1. **Removal of Dream Lake Dam.** Thermal springs on the south side of Lassen National Park emit mercury that moves downstream in the water column and in small particulates associated with sediment. Because the lake is located in a thermal area, removal of the dam has potential to release mercury when sediment that is currently trapped by the dam is exposed to erosion following dam removal. Because of excavation at the dam site and potential for discharge of mercury, a Clean Water Act §401 Water Quality Certification is required for removal of the dam. S_RWQCB-1

2. **Clean up of old trash dump at Drakesbad Meadow.** Old trash dumps often contain elevated levels of metals such as lead. The trash dump should be assessed and waste disposed of properly. S_RWQCB-2

3. **Improved water flow past barriers created by roads and paths across meadow.** Improved flow can mean faster flow velocity, which can generate accelerated erosion and gullies in meadow sediments. Restoration of meadow hydrology should be planned and overseen by qualified personnel. S_RWQCB-3

I can be reached at (530) 224-4997 if you have any questions regarding these comments.

Guy Chetelat, P.G.
Non Point Source, Storm-water Regulatory Unit
530-224-4997
Fax: 530-224-4857

GFC: sae

Comment Letter S_California Regional Water Quality Control Board

S_RWQCB-1

The commenter has advised that a Clean Water Act section 401 Water Quality Certification permit is required for removal of Dream Lake Dam. If the Dream Lake Dam removal Alternative is selected, the NPS will comply with all required permits for this project. This is the case for each action in the *Warner Valley Comprehensive Site Plan* that requires a permit. Permitting will take place prior to construction of each project. The commenter is referred to page 4.11-1 of the EIS which includes the following statement regarding permitting needs for construction-related activities:

> *Inspect the project to ensure that impacts stay within the parameters of the project area and do not escalate beyond the scope of the environmental assessment, as well as to ensure that the project conforms with all applicable permits or project conditions*

The following language is added to the beginning of the table on page 4.11-1 of the EIS:

Federal and State Permit Requirements	The NPS will apply for and comply with all federal and state permits required for construction-related activities prior to project construction.

S_RWQCB-2

The commenter advises that the old trash dump at Drakesbad Meadow should be assessed and waste disposed of properly. The clean up of the historic garbage dump is not addressed in the Comprehensive Site Plan, and therefore was not analyzed in the Environmental Impact Statement. The NPS is aware of the existence of the old dumpsites, but because very little is known about the dumpsites, their content and their historic significance to the valley, this plan will be implemented without disturbing the old dumpsites.

S_RWQCB-3

The commenter recommends that the Drakesbad Meadow restoration be planned and overseen by qualified personnel. The following language has been added to page 2-38 of the FEIS:

> Restoration of meadow hydrology would be planned and overseen by qualified personnel.

Comment Letter S_NSAQMD

"Sam Longmire"<sam@myairdistrict.com>
To <LAVO_Planning@nps.gov>
11/03/2009 12:19PM
Subject Warner Valley Comprehensive Site Plan Draft EIS

Re. Comments on the Warner Valley Comprehensive Site Plan Draft EIS, submitted by the Northern Sierra Air Quality Management District (NSAQMD)

Dear Superintendent:

The NSAQMD has reviewed the Warner Valley Comprehensive Site Plan Draft EIS and has the following comments.

There is a statement near the bottom of page 1-8 that the park extends into 4 counties and is “regulated by the Northern Sierra Air Quality Management District.” Actually, only the portion that is within Plumas County is regulated by the NSAQMD. Lassen, Tehama and Shasta County each has a separate air quality management district or air pollution control district. S_NSAQMD-1

An Authority to Construct/Permit to operate will be required for any diesel powered generator greater than 50 hp located in Plumas County. It is recommended that the NSAQMD be consulted regarding the possible need for permitting, by calling the NSAQMD main office at (530) 274-9360. S_NSAQMD-2

Any open burning conducted in Plumas County must be done under the authority of an Air Pollution Permit issued by the NSAQMD. It is recommended that the NSAQMD be consulted regarding the need for an Air Pollution Permit by calling the Quincy field office at (530) 283-4654. Consideration of alternatives to open burning for disposal of waste vegetation is recommended. S_NSAQMD-3

Pursuant to District Rule 226, for any project involving the disturbance of more than one acre, the NSAQMD must approve a Dust Control Plan prior to surface disturbance. For the disturbance of less than one acre, reasonable precautions (e.g. watering as needed) must be taken to prevent dust emissions. Either of the above numbers may be called for additional information on dust control requirements. S_NSAQMD-4

Please contact me at (530) 274-9360 x106 or sam@myairdistrict.com with questions about these comments.

Sincerely,

Samuel F. Longmire, Air Pollution Control Specialist III

Samuel F. Longmire, MSES
Air Pollution Control Specialist III
Northern Sierra Air Quality Management District
PO Box 2509, Grass Valley, CA 95945
Phone: (530) 274-9360 x106

Comment Letter S_Northern Sierra Air Quality Management District

S_NSAQMD-1

The commenter points out that only the portion of the Lassen Volcanic National Park that is within Plumas County is regulated by the Northern Sierra Air Quality Management District. The text on page 1-8 of the EIS has been corrected with the following language:

> Lassen Volcanic National Park extends into four counties, including Plumas, Lassen, Shasta, and Tehama. Warner Valley is in Plumas County, which is regulated by the Northern Sierra Air Quality Management District.

S_NSAQMD-2

The commenter notes that an Authority to Construct/Permit to operate will be required for any diesel powered generator greater than 50 hp located in Plumas County. The NPS will obtain a generator permit from NSAQMD at the time the service center is constructed.

S_NSAQMD-3

The NPS does not anticipate conducting any open burning as part of the proposed project. However, if any open burning is planned in the future, the NPS will consult with the NSAQMD regarding the need for an Air Pollution Control Permit.

S_NSAQMD-4

This plan proposes to disturb more than one acre cumulatively over the next 10 years, however less than one acre is expected be disturbed during any given phase. Following the completion of each construction phase, disturbed areas will be revegetated. If more than one acre will be disturbed in a single phase the NPS will submit a dust control plan for approval by the NSAQMD.

Comment Letter L_Almanor Basin Fire Safe Council

Comment Letter L_Almanor

Almanor Basin Fire Safe Council
Knutsen, Dale E.
361 Osprey Loop
Chester, CA 96020
dngknut@frontiernet.net

Ref. Section 3.7, Public Health & Safety, Draft EIS for Warner Valley Comprehensive Site Plan (Aug. '09)

Vehicular access to and from Drakesbad and Warner Valley is limited to a two lane road that dead ends at Drakesbad. This singular route poses a well known public safety concern in the event of a nearby wildland fire, since it limits the alternatives available to evacuate visitors and staff from those areas. Monetary, aesthetic and environmental issues have made impractical the possibility of creating a second road out of Drakesbad. All of which creates a public safety dilemma for the Park Service when dealing with a region that frequently experiences wildland fire.

It is therefore recommended that Lassen Volcanic National Park prepare an emergency evacuation plan for Drakesbad and adjacent park areas that emphasizes early detection of potential fire threats and prompt decision making to ensure that visitors and staff can be evacuated safely well before a fire blocks the egress route. Such a plan should be coordinated with adjacent agencies (Lassen National Forest, CalFire, Plumas County), and be widely distributed so that there is no ambiguity or hesitation if and when an emergency occurs. The Park Service plan would benefit not only the Park itself but also the residents and visitors of the non-Park portions of Warner Valley.

L_Almanor-1

- Dale Knutsen

L_Almanor-1

The commenter has advised that limited vehicular access to Warner Valley and Drakesbad Guest Ranch is a pubic safety concern in the event of a nearby wildfire. Page 4.11-4 of the EIS describes the mitigation measure for the impacts to transportation that would occur as part of the construction of the proposed project. Regarding the commenter's recommendation that an emergency evacuation plan for Drakesbad Guest Ranch be created as part of the Comprehensive Site Plan, this is beyond the scope of this plan and the NPS has already addressed this issue in the Park's Emergency Operations Plan. The Lassen Emergency Operations Plan (April, 2008) describes evacuation procedures for the Drakesbad area in the event of a wildfire. In summation, Drakesbad Guest Ranch guests and campers would be evacuated along the main access route for seven miles and then utilize the alternative route developed by the Forest Service. If the egress route is compromised guests and campers would take refuge in the Drakesbad Meadow and if the situation warranted it, they would be evacuated by helicopter. The topography dictates that there is no alternative egress route for the western seven miles of the Warner Valley Road. In 2009, the US Forest Service reopened old logging roads to create alternative driving routes from where the Warner Valley Road crosses Warner Creek (approximately seven miles south of Drakesbad Guest Ranch) out to the confluence with the Juniper Lake Road.

Comment Letter A_WFEN

Superintendent
Lassen Volcanic National Park
P. O. Box 100
Mineral, CA 96063
lavo_planning@nps.gov

RE: Warner Valley Comprehensive Site Plan - EIS

I am compelled to write this letter and consider it a great honor to state my defense of this magnificent land. The National Park that has been entrusted to you holds more of my sweet memories than any other place on earth. I have wandered the islands of the Galapagos, trekked the Bale Mountains of Ethiopia, navigated the canals of the Mekong Delta in Vietnam and called the deserts of Namibia my home for close to four years and yet I still hold the landscape of Lassen Volcanic National Park, and specifically Drakesbad Guest Ranch, more close to my heart than any other place on this earth.

Many of the proposed changes set within the Warner Valley Comprehensive Site Plan not only threaten the chance for my children to experience this great site the way that I have, but also introduce management styles that will negatively affect the local ecosystems that have evolved in this area over the past century. I hope that you will spend just a minute to consider the complete ramifications of this plan. A_WFEN-1

There are a great number of items in the plan that, if implemented, will produce minimal benefits and yet will set in motion a slew of negative consequences. These items include reopening the Head of the Valley trail, road/path to pool and location of the corral and volleyball court. For example, the opening of the Head of the Valley trail is unnecessary and could harm local riparian areas. The trail is visible in many areas and clearly marked in others so that experienced hikers interested in experiencing this wonderful and delicate location are free to do so. The fact that the location of the volleyball court made it into this plan baffles me. I sure hope the National Park Service has better things to do than move nets. A_WFEN-2 A_WFEN-3

What really worries me about this plan is the actions to be taken in the meadow and with Dream Lake. These are two areas that, although man-made, have come to define this wonderful Guest Ranch and have evolved into important habitat in the area. To use these areas as test sites is dangerous and short-sighted. These areas mean so much to the people and animals that frequent them. A_WFEN-4

I am a person dedicated to our local ecosystems and environments around the world. I have worked for conservation agencies in Africa and sit on boards for a number of very dedicated and impactful conservation organizations. I understand the balancing act that must take place in considering the choice between the natural occurring habitat and that which has been altered by humans. It is a delicate line to walk.

What we must consider in the case of Drakesbad is the true impact the items within this plan will have on the entire ecosystem of the area and the people who enjoy it. This is not a wilderness area. This is not a sample site to use within experiments. This is a home to many species and is a treasure to many humans. A_WFEN-5

Comment Letter A_WFEN

I am the fourth generation in my family to enjoy Drakesbad Guest Ranch. It will make me sad to think that my children will have the negative experiences of a test case went wrong. Please understand I appreciate the job you do in maintaining such a beautiful park. But also understand the word of a great man.

"The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired in value." Theodore Roosevelt spoke these words many years ago and I am reprinting them again today. Please do the right thing and turn this great area over to our next generation increased and not impaired in value.

Yours Truly,

David Bell
Wildlife Friendly Enterprise Network
www.wildlifefriendly.org

Comment Letter A_Wildlife Friendly Enterprise Network

A_WFEN-1

Comment noted.

A_WFEN-2

The commenter refers to the statement on page 2-21 of the EIS, which describes the consideration of the "reopening, preservation, and maintenance of historic trails" including the Head of the Valley Trail. This is an action that the NPS may consider in the future, but is not part of this project and is therefore not assessed in this Environmental Impact Statement.

A_WFEN-3

The proposal to remove the volleyball court is in an effort to rehabilitate the historic district in order to protect the significant cultural landscape resources at Drakesbad Guest Ranch. The *Cultural Landscape Report for Drakesbad Guest Ranch Historic District* considers the volleyball court a non-historic feature within the historic viewshed to Mount Harkness and recommended its relocation. The NPS acknowledges the need for the relocation and intends to establish a new volleyball court to a site near the east side of the swimming pool in the future. The following text has been added to the document:

> Page 2-7:
>
> - Relocate volleyball court to a site near the east side of the swimming pool
>
> Page 2-37:
>
> Under the preferred alternative the volleyball court would be removed from its existing site and the disturbed area restored by removing the sand and reseeding the area with native plants. The volleyball court would be relocated to a site near the east side of the swimming pool that is outside of the historic district.
>
> Page 2-50:
>
> This alternative would remove the volleyball court from its existing site and restore the disturbed area by removing the sand and reseeding the area with native plants. The volleyball court would be relocated to a site near the east side of the swimming pool that is outside of the historic district.

A_WFEN-4

Comment noted. The alternatives set forth in this proposed project are the result of years of observations and expertise of the NPS management staff as well as numerous scientific studies and research. The NPS does not view the activities proposed as test sites. The NPS will consult with wetland specialists and the NPS Water Resources Division for development of a Restoration Implementation Plan for Drakesbad Meadow.

A_WFEN-5

In response to the commenter's statements that this is not a wilderness area and this is not a sample site to use within experiments; the Comprehensive Site Plan is the result of years of observations and expertise of the NPS management staff as well as numerous scientific studies and research. The NPS does not view the activities proposed as test sites. Being outside of designated wilderness does not release the NPS from its mandate to manage for natural processes as stated in the park mission on page 2 of the 2001 General Management Plan.

Comment Letter NA_Margaret Barthel

Comment Letter NA_Barthel

Dear Superintendent:

Thank you for giving interested parties the opportunity to comment on the DEIS for Warner Valley. My family and I have stayed at Drakesbad every summer for the last 26 years. We love Drakesbad, Warner Valley, and Lassen Park. I agree with most of the plans included in the agency preferred alternative 2. It seems well thought out and will improve the area in the long run. this is a small point but I think removing the volleyball court to improve the view of Harkness is a good idea. I am struggling with the idea of getting rid of Dream Lake. Although I realize that the damming of Dream Lake changed the ecology of the area, it does provide for a small, scenic body of water within easy walking distance of Drakesbad. Juniper Lake is just not part of Warner Valley and Drakesbad and is a little too far away. Many of the other proposed changes will increase water flow in the meadow. If a safer dam could be built, I would be in favor of doing so. At the same time, the area around Dream Lake could be restored. I would like to propose adopting alternative two with the exception of removing Dream Lake.

NA_Barthel-1
NA_Barthel-2
NA_Barthel-3
NA_Barthel-4
NA_Barthel-5

Thank you.

Margaret Barthel
mmbarthel@gmail.com

NA_Barthel-1

Comment noted.

NA_Barthel-2

Comment noted.

NA_Barthel-3

Comment noted.

NA_Barthel-1

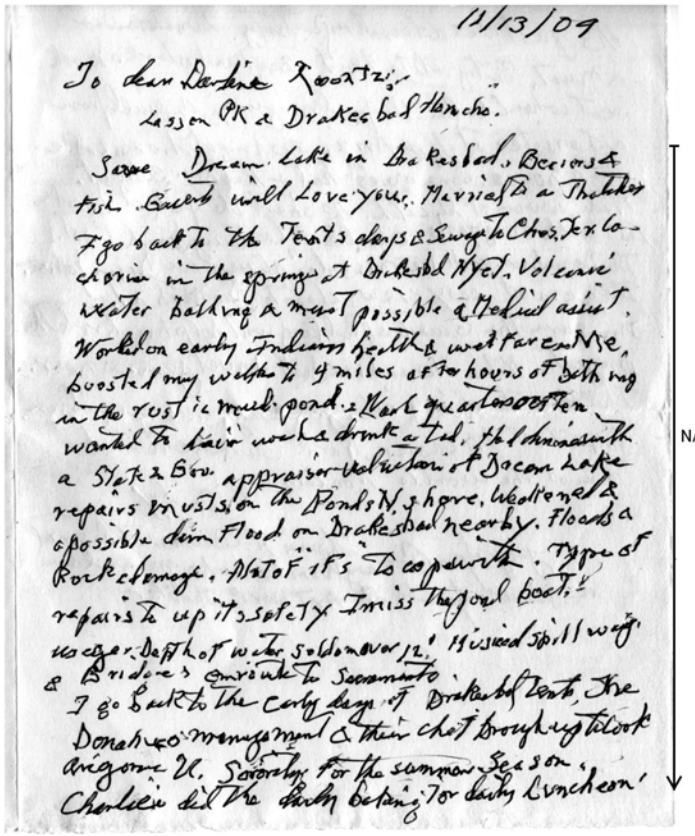
The commenter expressed preference for the replacement of the Dream Lake Dam as proposed in Alternative 3. Comment noted.

NA_Barthel-1

Comment noted.

Comment Letter NA_Thomas Beeman

Comment Letter NA_Beeman



11/13/09

To dear Darlene Koontz:

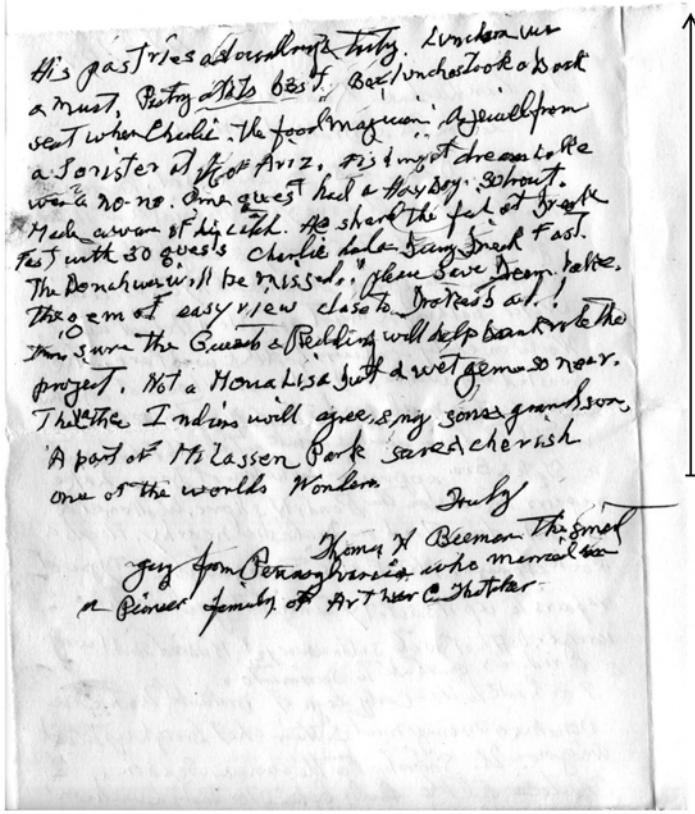
Lassen PK & Drakesbad Ranche.

Save Dream Lake in Drakesbad. Beavers & Fish. Guests will Love you. Marriage & Thatcher

I go back to the Tent days & Swage to Chas. for lo-
cation in the springs at Drakesbad West. Volcanic
water bathing & most possible & Medical assist.
Worked on early Indians health & welfare & Me,
boosted my weight to 9 miles of 10 hours of bathing
in the rust in mud pond. & Work quarters often
wanted to leave work & drink a lot. Met Dr. Smith
a State & Gov. appraisor-valuation of Dream Lake
repairs musts on the Ponds N. shore, weakened &
a possible dam Flood on Drakesbad nearby. Floods &
Rock damage. Not of it's to cope with. Type of
repairs to up it's safety I miss the Coal boat.
no cover. Depth of water 5 to 8 over 12' Missed spill way
& Bridges enroute to Sacramento.
I go back to the early days of Drakesbad Tents, the
Donahue management & their chef Dough-eye Cook
Angorne U. Sorority for the summer Season.
Charlie did the early baking for early Luncheon'

NA_Beeman-1

Comment Letter NA_Beeman



His pastries & sourdough bread
a must, Pretty Nate best. Best luncheons took a back
seat when Charlie the food magician departed from
a Sorister of Ariz. Fish must dream to be
were a no-no. One guest had a Hay Day. Shout.
Made aware of his catch. He shared the fish at breakfast
Fast with 30 guests Charlie bake Bang Bread Fast.
The Donahues will be missed. Please Save Dream Lake.
The gem of easy view close to Drakesbad!
Thus save the Guests & Fishing will help Bank roll the
project. Not a Mona Lisa but a wet gem so near.
The Indians will agree, & my sons grandson,
A part of Mt Lassen Park sacred cherish
one of the worlds Wonders

Truly

Thomas H Beeman The great
guy from Pennsylvania who married
a Pioneer family of Arthur C. Thatcher

NA_Beeman-1 cont.

NA_Beeman-1

The commenter states general opposition to any changes to Dream Lake. These comments are noted.

Comment Letter NA_BellC

To: Superintendent
Lassen Volcanic National Park
P. O. Box 100
Mineral, CA 96063
LAVO_Planning@nps.gov

From: Chuck Bell
P. O. Box 193
Lucerne Valley, CA 92356
chuckb@sisp.net
760 964 3118

Date: 11/20/09

RE: (Draft) WARNER VALLEY COMPREHENSIVE SITE PLAN – EIS

Thank you for sending the document.

My grandchildren are the fifth generation of our family to experience Drakesbad – a unique and treasured place. My grandparents first took me and my mother there in the mid 1950's. We slept in tents, hiked and rode horses, sat around campfires listening to Alexander Sifford and his son Roy discuss the options of logging their properties vs. selling to the Park Service. They ultimately chose the latter because they wanted their friends and the public to cherish what nature AND they had created. We are part of the Drakesbad "Family" - lovers of what it is. We are Park supporters, Foundation benefactors, and more importantly - Drakesbad defenders.

Where applicable - some of my comments are excerpts from correspondence with Supt. Parris beginning in 2001 re: the meadow, Dream Lake, beavers, etc. (NPS' responses were thorough and much appreciated).

My perspective – which should also be NPS' – is well described on 4-1 ("Impairment"): "…….mandate to conserve park resources and values. NPS managers must always seek ways to avoid or minimize to the greatest degree practicable adverse impacts on park and monument resources and values……..as long as the impact does not constitute impairment of the affected resources and values…..statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise". Note the co-emphasis on "VALUES" – and "PARTICULAR LAW" (or lack thereof). Also need to maintain history and culture". NA_BellC-1

Except for project elements described below - I generally concur with Alternative 2's scope - particularly the infrastructure improvements – a bit ambitious for declining budgets and likely not accomplished within the short-term – but good luck! The final Plan/EIS should prioritize said improvements based on funding expectations. NA_BellC-2

TRAILS

"Head of the Valley" trail was mentioned on 2-21 for "consideration of reopening, preservation and maintenance" – however I found no additional info. or analysis as a "project". The very few of us who use it keep the route marked with rock cairns – its path visible enough in most places – little if any erosion – a nice "off the main trail experience" – better just left as it is – not placed in NA_BellC-3

Comment Letter NA_BellC

the maintained trail system. Increased horse and foot traffic would be significantly detrimental to the critical spring/riparian/wetland outcrops that the trail would traverse – an impact not assessed in the draft. NA_BellC-3 cont.

LOWER CAMPGROUND CLOSURE

The lost "visitor experience" for those who have utilized the lower campground and who prefer to camp near Hot Springs Creek is not assessed nor mentioned as a "consequence". This one needs some analysis re: benefit vs. impact. NA_BellC-4

CONCESSIONER HOUSING AND SERVICE CENTER

The proposed location is probably adequate – but its distant separation from the manager's quarters will require some "adult" supervision and security. NA_BellC-5

BATHHOUSE AND POOL

Locally available and continuous geothermal power - nature's hot water – whether direct or via heat exchange – would provide more efficient heating energy and less intrusive equipment than limited, peak electrical power from photovoltaics – particularly in that location. NA_BellC-6

ROAD/PATH TO POOL/BATHHOUSE

Road width should be at least 8-10' to accommodate occasional truck traffic for construction/maintenance/emergency purposes. Width should be less of a concern with a permeable base to allow surface water dispersion. NA_BellC-7

CORRAL

Preferred Alt. 2 location expanded into "boneyard' is certainly more appropriate than the Alt.. 3 location outside the historical district – a logistically untenable placement. Plus - kids like to visit horses which need to remain on-site. "Visitor experience – history" - etc. NA_BellC-8

VOLLEYBALL COURT

The proposal to "remove" the volleyball court (which also is a badmitten court/soccer field/etc.) is the most ludicrous anti-"visitor experience" proposal in this document – hopefully not a revelation of NPS' "real" agenda - hopefully just an off-the-wall "injection" from a new staffer who has no idea whatsoever what Drakesbad is all about. Any sensible NPS administration that had any idea of history - values – custom - culture – with some semblance of common sense (what's left of it) – would never propose it. The court's effect on the "meadow" is so insignificant as to not even warrant mention. Mt. Harkness' viewshed is fully visible above the heads of our children having fun on the volleyball court – fun they have been having for more years than I can remember – where we know where they are - enjoying the "historical experience" – and just being kids. If someone wants to see a "virgin" view of Mt. Harkness – they can walk about 10' north or south of the court.

I can't believe this was included as part of the "project". It dilutes the integrity of what otherwise could be considered a somewhat sophisticated attempt to deal with "real" Warner Valley issues. **Reject this stupid idea!** NA_BellC-9

WALLS AT CABINS 9-12

Alt. 3's "Cover existing exterior porch concrete block walls with stone veneer" is more economical and practical than Alt. 2's "replacement with stone walls." NPS has to get a handle on its budget realities! NA_BellC-10

PC TRAIL LINK

PC hikers don't and won't bypass Drakesbad's amenities – hot showers – great food – etc. – providing great conversation for the quests. Don't spend taxpayer funds and disturb new ground for a trail link they won't use! NA_BellC-11

BUNGALOW (Mission 66 duplexes) LOOP ROAD

Loop closure will create the need for more vehicle turning movements – interfere with staff access – etc. It's fine the way it is! NA_BellC-12

MEADOW

Webster's (1988) definition of a "fen" is ".....marsh....mud...wet, slime, mire....damp..an area of low, flat, marshy land; swamp; bog."

Apparently NPS has adopted Dr. Cooper's proposal as a project. The current meadow characteristics, vegetation, habitats, etc. that could or would be altered by transition to a "fen" have not been thoroughly addressed in the EIS. This could be a disastrous experiment, based on bad science. If the attempt doesn't work, then what? What is the net benefit of a "fen" compared to maintaining the meadow in its current or an upgraded condition nearly a century after it was modified? NA_BellC-13

My first impression years ago of Dr. Cooper's article was that it seemed to be an arrogant attack on the very efforts of the Siffords and others to improve on this masterpeice called Drakesbad. Sometimes the work of man can make nature a little more hospitable for man and beast. I am obviously biased. I love Drakesbad the way it is, one of the few environments that have remained fairly constant (except for loss of aspens due to introduced beavers). But I also want to see the meadow function as envisioned and maintained by the Siffords - a productive ecosystem providing habitat for a great diversity of species - currently the case as even substantiated by Cooper's paper (top paragraph-page 2). NA_BellC-14

The following words are engraved on a bronze plaque by the lodge flagpole:

> "The Siffords....were deeply involved in creating Lassen Volcanic National Park and in preserving Drakesbad as a symbol of their love for the valley. In 1960 Roy Sifford entrusted this area to the National Park Service"

Roy "entrusted" the NPS to "preserve" Drakesbad; including maintaining the meadows as they then existed. Quote from the letter Roy sent me in 1991:

> "When I gave them the properties I Stipulated that Meadows and Buildings be kept up or even bettered. LEFT TO NATURE THE MEADOW REVERTS TO WILLOWS, MUD HOLES, MOSQUITOES. THE LIFE TIME EFFORTS OF THE SIFFORDS IS WASTED".

NA_BellC-15

Comment Letter NA_BellC

Drakesbad (and its meadow) is not a designated "wilderness area" that must be entirely "natural". It is an historic cattle ranch and resort founded and built by devoted pioneers who loved every inch of it; so much so that they chose preservation over more financially lucrative logging. Your mandate for this piece of ground is to honor the donor's agreement, maintain its unique heritage and diversity; not convert a perfectly fine meadow into a boggy swamp. There probably isn't one Drakesbad visitor now or in the future that would prefer a "marshy bog" over what we have now. The biological diversity that Dr. Cooper's "fen" might provide would likely be microscopic, except of course for the mosquitoes. However, certain improvements could be made to improve the integrity of the current meadow; a valid project alternative. Although not politically correct and in conflict with LVNP policy, selective horse grazing might actually improve current meadow conditions.

Managed by its very capable concessionaire and its staff, Drakesbad provides a fantastic service and much needed revenue to the NPS. To a large extent, the meadow is "Drakesbad". It works for us, the Park and its denizens. Let's not mess with success. There are plenty of valid projects to spend money on with more assured productivity (ie: fire management, controlled burns, beaver control, trail maintenance, etc., etc.). NA_BellC-16

If NPS is dead-set on tinkering with what has evolved over time into a functioning "meadow" – (and part "fen") – then why not start off with "phase 1" - experiment with filling in 1 ditch – or install a few metal sheets in a portion of the area – see what happens – then determine how to proceed via a public decision process – before potentially screwing up the whole thing. And maybe resolving your own quandry (per impact table 4-2) - "The long term impact to Drakesbad Meadow is difficult to predict". NA_BellC-17

DREAM LAKE DAM

I firmly believe that the Dream Lake Plan can be resolved within the context of both NPS policy and the perpetuation of the Drakesbad experience; a unique and cherished place that has remained intact over time. Dream Lake is an integral component of the Sifford holdings that NPS accepted as it was - per the original agreement and understanding - and managed to date as what it is; a man-made lake (that has evolved into a an important habitat niche on its own). Sometimes the work of an old cowboy, even back in 1932, can actually complement a natural process. NA_BellC-18

Dream Lake is not designated "wilderness". All of our Parks include many such man-made structures and environments in their core recreational areas. Dream Lake is part and parcel of the culture, landscape (and "Historic District") of Drakesbad. It has been assigned a "Low Downstream Hazard Classification." There is no immediate health/safety problem. If the dam ever fails – it will likely be in the spring during heavy run-off – when visitors are not present. The concept of Juniper Lake – miles away - providing an "alternative" to Dream Lake – dilutes the integrity of the thought process that went into this document! NA_BellC-19

A legitimate Plan compromise should include minimum dam restoration (hand work by the CCC, etc.) necessary to maintain the lake's integrity over the short term, manage beaver activity accordingly, and let the natural process eventually fill in the lake with sediment, ultimately resulting in the floodplain/wetland that likely existed prior to lake creation. This alternative allows NPS to maintain the historical, cultural, recreational, and ecosystem attributes; while allowing nature to do its thing over the long-term – slowly – with natural restoration - a Plan entirely consistent with current NPS policy and practice elsewhere. Plus – you don't screw it up with machinery by either re-vamping or removing the dam – a consequence even NPS deems "a major, adverse impact". NA_BellC-20

Comment Letter NA_BellC

BEAVERS

Although not a specific issue for this Plan or EIS – beaver management is an important component to a functional Plan – ie: Dream Lake and loss of aspens – particularly since NPS' current position is that beavers are "native" – a questionable decision in light of Fellers' report ("not native") and the following quotes :

(Plan 3.3-6): "It is unclear whether this species was historically native to the Lassen area and, since they have the capacity to locally alter hydrology and vegetation, NPS commissioned several studies …..to provide a basis for beaver management within the park and has since made the decision to manage the beavers as a native species".

Following are excerpts from previous letters:

3/21/02 from Supt. Parris: "It is likely that the current Drakesbad beavers derived from the populations that were planted in nearby streams in the mid 1940's and are thereby a non-native population" (emphasis added).

My 11/29/02 letter: "It seems that beaver presence in Warner Valley is muddled by inconclusive biology. The "native/non native" issue does not have to be resolved by virtue of this action. If non-native, beavers should be removed; certainly if we are going to "remove all human interference". Assuming in this instance that they are native (although unlikely since so many aspen and other tree species have been extirpated by beavers over a relatively short time frame); NPS policies and practices throughout its system allow and require management of native species to benefit the "whole" of the unit, ie: bison, elk, wolves, bears, etc. etc. in Yellowstone, Yosemite, etc. etc. There is no reason why we cannot "manage" some beaver activity that threatens a little dam on a little lake that means so much to so many people and the micro-environment created by it. Consistency is a major component of credibility". NA_BellC-21

"Beaver deceivers" on the Dream Lake spillway is a good mechanism if it works. So would be the more realistic and scientific policy of treating them as "non-native" – which they probably are – removing them – planting (restoring) aspens along the Hot Creek wetlands!

NPS documents and letters state that "the Drakesbad area is prime beaver habitat" even if they are non-native. I live in an area of prime habitat for tumbleweeds, brome grasses, ravens, feral dogs, gophers, etc.; basically non-native to the California Desert and creating absolute degradation to its natural environment. Does the fact that this is "prime habitat" make it OK?

Let's protect wilderness where appropriate and historic values where applicable".

Comment letter NA_Chuck Bell

NA_BellC-1

Comment noted.

NA_BellC-2

The commenter makes a statement regarding prioritizing improvements based on funding expectations. The EIS examines environmental impacts irrespective of funding constraints in order to fully assess the alternatives based on their comparative impacts to the environment. The nature of the National Environmental Policy Act (NEPA) is to provide a document that will allow the NPS to prioritize projects as funding becomes available.

NA_BellC-3

The commenter points out the statement on page 2-21 of the EIS, which describes the consideration of the "reopening, preservation, and maintenance of historic trails" including the Head of the Valley Trail. This is an action that the NPS may consider in the future, but is not part of this project and is therefore not assessed in this Environmental Impact Statement.

NA_BellC-4

The closure of the lower campground is in an effort to improve visitor experience. Visitors staying at the lower campground experience dusty conditions due to its proximity near the road. This alternative also rectifies the safety concerns of the steep slope down to Hot Springs Creek. However, because moving the five campsites across the road could result in a few more people crossing the road to access Warner Creek, safety features such as signs advising drivers to slow down will be installed.

NA_BellC-5

Comment noted.

NA_BellC-6

The commenter recommends using geothermal power as an alternative energy source at the bathhouse and pool. Geothermal power is still under consideration as an alternative energy source, see page 2-33 of the EIS.

NA_BellC-7

The commenter recommends that the road to the pool/bathhouse be at least 8-10 feet to accommodate occasional truck traffic. Page 2-23 of the EIS describes the approximately 7-foot width proposed for this road. The intent of this narrower road is to eliminate vehicular traffic to the pool and have the concessioner use "golf cart"-sized vehicles for everyday uses.

NA_BellC-8

Comment noted.

NA_BellC-9

Please see the response to Comment A_WFEN-3.

NA_BellC-10

Comment noted. See response to NA_BellC-2.

NA_BellC-11

Comment noted.

NA_BellC-12

Comment noted.

NA_BellC-13

The commenter is concerned by the proposed restoration of Drakesbad Meadow, which is based on the research conducted by Patterson and Cooper. Please see the responses to comments NA_WatsonC-1 and NA_WatsonS-8.

NA_BellC-14

The efforts undertaken by the Siffords to drain and manage the meadow were for the purposes of expanding pasture for the cattle that once grazed there. After the NPS purchased the Drakesbad Guest Ranch, pasturing livestock in the meadow was discontinued.

NA_BellC-15

Since the National Park Service purchased the Drakesbad Guest Ranch in 1952, it has discontinued the historic practices performed by the Siffords such as clearing vegetation, planting field crops, grazing livestock, constructing and maintaining drainage and irrigation systems.

NA_BellC-16

The commenter states that “Your mandate for this piece of ground [Drakesbad Meadow] is to honor the donor’s agreement, maintain its unique heritage and diversity”. The mandate for the NPS is “...to promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” (National Park Service Organic Act, 16 U.S.C.1) Specifically, the purpose of Lassen Volcanic National Park was established with the mission “for the preservation from injury or spoliation of all timber, mineral deposits and natural curiosities of wonders…and their retention in their natural condition…” Inherent in the mission of the NPS and the purpose designed for Lassen Volcanic National Park is the balance between preserving both natural and cultural resources. There was no specified “donor’s agreement” between the NPS and the Siffords when the property was purchased. Rather, the land is to be managed based on the mission of the NPS. This mission strives to strike a balance between historic values (i.e the Siffords vision for the land) and preserving features in their “natural condition”. The alternatives for this project were developed by the Lassen Volcanic National Park land managers based on the directives of the NPS’s mission (including preservation of cultural resources), their knowledge and expertise of land management, and input from the public.

NA_BellC-17

If Alternative 2 is selected and the restoration of Drakesbad Meadow moves forward, the NPS would prepare a Restoration Implementation Plan for Drakesbad Meadow with public scoping and public review. The NPS will consult with wetland specialists with the NPS Water Resources

Division. The plan will also include elements of adaptive management that will monitor the success of restoration efforts based on ecological markers or criteria for success. As with most other NPS restoration projects, monitoring will be a critical piece to evaluate success and/or failures of projects, and to provide sound scientific information for future management actions.

NA_BellC-18

Comment noted. See response to NA_BellC-16. The NPS reviewed the archives related to the purchase of the Sifford property and no such written "standing agreement" has ever been found.

NA_BellC-19

The commenter notes that many National Parks include man-made structures such as Dream Lake Dam. While this is true, there is legislation passed in 1987 that restricts the establishment of dams in National Parks and thus it is National Park policy to discourage dams unless they are in keeping with the mission of the Park itself.

NA_BellC-20

The EIS evaluates three alternatives for Dream Lake Dam, one of which includes no action. The no action plan as well as the commenter's additional suggestion of allowing the lake to fill in naturally, does not alleviate the safety hazard of an unmaintained and weakened structure (see page 2-25 of the EIS). In addition, allowing the lake to fill with sediment would not in itself restore the riparian ecosystem envisioned in the preferred alternative.

NA_BellC-21

The commenter remarks that beaver management is an important component to a functional plan and takes issue with the statement while there is no conclusive evidence as to whether beavers are native or non-native in the park, the NPS chooses to manage beavers as native species. Numerous reports and studies over the past 40+ years have addressed this issue, with no conclusive evidence. The Fellers report (1981) that the commenter refers to was based only on the transplanting activities of the California Fish and Game and their records. The NPS continues to evaluate all current information and past studies to determining the best management direction in regards to beaver in Warner Valley.

Comment Letter NA_Julia Bell

Comment Letter NA_BellJ

To Whom It May Concern:

In our present world, so bereft of opportunities for pure and natural restoration of the soul, our family has found respite by spending generations of our summers at Drakesbad Guest Ranch. I first visited Drakesbad with my husband in 1969. He and his family had been enjoying it since the 50's. Our young children learned about the joys of the balance of glorious Mother Nature while hiking the surrounding trails.
They have cherished memories of making water wheels in the meadow, rowing on Dream Lake and hiking to the "steamy, boily, smelly, creepy places." We stayed in the cabins and looked down on a meadow at the deer and marmots. There is just no other equal experience to us.

The meadow, Dream Lake, volley ball court and horse corrals are the places where our family made memories. We implore you to make judicious choices in your plans for Drakesbad. The Siffords gave this piece of heaven to the NPS with specific instructions on how to manage its resources. I pray you will honor these obligations.

NA_BellJ-1

Sincerely,

Julia Bell

NA_BellJ-1

Comment noted. In addition see NA_BellC-16 regarding the balance between historic resources and ecological restoration.

Comment Letter NA_Bonnie and David Byrnes

Comment Letter NA_Byrnes

Superintendent
Lassen Volcanic
National Park
Mineral, CA

Dear Sir or Madam:

We used to go to Drakesbad for a few years and love it the way it is. Can the guest ranch afford to re-do the Dream Lake dam? That might be a solution. Please, we love it there, don't change it. Please stay there a few days and soak in the hot springs pool, looking out at the meadow, or awaken to look out there at the bear and deer on the early morning meadow. NA_Byrnes-1
I could go on and on.

Thank you for your consideration.

Bonnie and David Byrnes and Family
Sacramento California
BbonforJC@aol.com

NA_Byrnes-1

Comment noted. Reconstruction of the dam at Dream Lake is analyzed as Alternative 3 of this EIS. Please see the response to comment letter NA_BellC-2, which describes the funding process for the proposed project. Also see the responses to comments NA_BellC-19 and NA_BellC-20 regarding the analysis surrounding the decision to restore Dream Lake to a riparian habitat.

Comment Letter NA_Davies

Skip Davies <Skip.Davies@cityofwoodland.org>
To "LAVO_planning@nps.gov"
11/09/2009 10:16AM
Subject
Warner Valley plan - Lassen Meadow restoration

Darlene M. Koontz - Superintendent Lassen Park

I am writing to comment on the Warner valley plan as reported in the Sacramento Bee on November 9, 2009. As a reference I am a property owner in Warner Valley and was not notified or asked to be involved in the analysis or the proposed mitigation as suggested. I am also the Mayor of the City of Woodland in Northern California so have some experience in planning as well as the EIR processes and notifications required. In addition I have resided in Warner Valley during the summer months since 1964 and have personal knowledge of the Valley and Drakesbad area that could be of assistance. I would offer my assistance in looking at aspects of the proposed mitigation, options and costs to address the issues that are validated and beneficial to all interests. NA_Davies-1

The Bee article was informative, but I'm sure incomplete, thus I would prefer a process where I could be more involved. I believe the reported changes will have an impact on my property such as noise, traffic, dust, flooding, which must also be addressed in the documents and planning. At this point without further understanding I will oppose the project. I have also been in personal contact wit three additional property owners in Warner Valley who share my concerns, Fritz & Betty Grimmer, Ray & Gloria Stryker Stryker, and Dave & Hillary Dalton. Furthermore the timing is not appropriate since the Valley residents are not present at this time an all but a few cabins are closed for the winter, politically the process appears to have been staged in order to not provide full disclosure and or full transparency as the current President of the United States proclaims is the governments agenda. Sincerely, Marlin H. Davies, 1605 Camino Way Woodland Ca. (530-662-4892) - email - skipandjulie@sbcglobal.net NA_Davies-2 NA_Davies-3

Comment Letter NA_Skip Davies

NA_Davies-1

The commenter expresses concern that he was not notified or asked to be involved in the analyses of the proposed project. The public notification and scoping process for the Dream Lake Management Plan, Comprehensive Site Plan for Warner Valley and the Environmental Impact Statement began in November of 2002. Outreach included public notification via posted flyers, mailed flyers, public scoping meetings held in the towns of Chico, Red Bluff, Redding, Chester and Vacaville, as well as letters sent to 670 people who have expressed interest in the project in the past. Details regarding the full scoping process are provided in Section 5.1, Public Scoping and Workshops. These notifications and outreach constitute a good faith effort to inform and solicit comment from all who may be interested in the outcomes of these documents.

NA_Davies-2

The commenter notes that there will be impacts on his property from noise, traffic, dust and flooding. Potential impacts under Alternative 2 from construction and operations including those resulting from noise, traffic, dust and flooding are analyzed in the following sections of the Environmental Impact Statement (EIS):

- Section 4.2, Hydrology
- Section 4.4, Soundscapes
- Section 4.8, Transportation

While the analysis acknowledged short-term, adverse impacts associated with these resource areas, the long-term impacts are considered beneficial for each resource. Adverse impacts within Warner Valley will be mitigated through implementation of the mitigation measures proposed in Chapter 6. As a result, it can be anticipated that short-term impacts to neighboring properties will also be mitigated and that long-term impact will be beneficial.

NA_Davies-3

The commenter states that the timing is not appropriate and that the process has not provided full disclosure or full transparency. Please refer to *Section 1.3.3 Public Involvement* and *Section 5.1 Public Scoping and Workshops* of the FEIS, which outlines the public involvement for this project. Notices of Intent (NOIs) to prepare a Draft EIS were published in the Federal Register on April 4, 2003 and June 24, 2005. The Notice of Availability of the Draft EIS was submitted to the Federal Register and the Environmental Protection Agency on August 21, 2009 as required for full public disclosure. The public comment period was open for 90 days beginning August 21st in compliance with the National Park Service Director's Order #12: Conservation Planning, Environmental Impact Analysis and Decision Making. Releasing the document at this time was not intended to prevent or limit the ability of the public to read and comment on the document. As described in the response to NA_Davies-1 and NA_Hinman-6, this project has had a multiple avenues to solicit public participation. The following newspapers were also notified about the project: *Ridge Rider News*, Shingletown, CA; *Chester Progressive*, Chester, CA; *Red Bluff Dailey News*, Red Bluff, CA; *Northern California Times*, Cedarville, CA; *Redding Record Searchlight*, Redding, CA; *Sacramento Bee*, Sacramento, CA.

Comment Letter NA_William L. Diefenbach

Comment Letter NA_Diefenbach

I would simply like to confirm that my opinions are the same as those stated by Mr. Noakes below. Even though Mr. Noakes is a short-timer at Drakesbad (only 20 years !) those of us with over 35 years of visits support his statements. Thanks for listening. NA_Diefenbach-1

Bill
William L. Diefenbach, FAIA, LEED-AP
Senior Vice President
……

SmithGroup
301 Battery Street, 7th Floor
San Francisco, CA 94111

t 415.227.0100 d 415.365.3454 f 734.780.8298

bill.diefenbach@smithgroup.com

www.smithgroup.com

From: Geoff Noakes [mailto:geoffnoakes@hotmail.com]
Sent: Monday, November 16, 2009 8:48 PM
To: 'darlene_koontz@nps.gov'; 'lavo_planning@nps.gov'
Subject: Darlene-comments on the Warner Valley Comprehensive Site Plan/Draft EIS (August 2009) Darlene, I've read the entire plan twice and thought about it. In this email, I will only comment on the issues that affect the Drakesbad area -- that is the part of Warner Valley that my family has enjoyed every August for the last 20 plus years. During that time, we've enjoyed almost every major natural feature of Lassen Volcanic National Pack: Cinder Cone, Lake Juniper, Hat Creek, all sports of geothermal features, Willow Lake, the ice caves, the Lassen Summit, the lava tubes, Kings Creek, Mr. Harkness, Bumpass Hell, the amazing lava beds, Lake Manzanita, the Kohm Yah-mah-nee visitor center, etc.

In the Site Plan, we are presented with 3 options: Alternative 1 (do nothing), Alternative 2 (preferred by the NPS), and Alternative 3. I approached the Site Plan thinking I would select among the 3 alternatives for each issue -- what I found was that I chose "Alternative 1 (no action)"
for each issue. I'll comment on the issues I feel strongly about.

DRAKESBAD GUEST RANCH
Concessioner Housing and Service Center: I can't answer this. Who pays for this (the guests, the NPS, the Concessioner)? What does the Concessioner think is best? I think the that the Concessioner does a very good job at managing Drakesbad and making it such a wonderful experience for so many people. At the same time, the Concessioner runs a business and I wouldn't want to saddle him with costs that he doesn't see the need for.
Small Scale Features: Same as the above issue.
Bathhouse and Pool: the pool area and bathhouse are fine as is; guests at Drakesbad do not expect (or want) a 5 star hotel and pool experience.
Volleyball Court: this area is in constant use during the day, and at night we have an adults vs kids wiffle ball game in this area. It is the one level area close to the lodge. Please leave it as is.
DRAKESBAD MEADOW: there seems to be a group of people (who don't stay at Drakesbad) that want to convert the meadow into a fen bog (which translates to a mosquito marsh to those of us that do stay there). Please leave it as is.

DREAM LAKE DAM: Alternatives 2 and 3 call for the removal of the dam and therefore the lake (as is seen in Figure 2-17b). Dream Lake may be one of the most important things about Drakesbad, especially for small children.
It is close to the lodging areas and therefore easily accessible. The canoe allows many, many families to enjoy this small lake somewhat privately, to see all sorts of wildlife (birds, fish, beavers, frogs, and snakes), and to enjoy a quiet moment on the lake. Drakesbad sees families come back year after year, and generation after generation, and everyone I've met at Drakesbad has a story of what Dream Lake meant to them as kids. You are now the fourth superintendent that I've written to about Dream Lake; I would guess that many guests feel this way. My sense is that most people want the NPS to find a way to fix Dream Lake's problems, but not at the expense to taking it away forever.

I thank you in advance for allowing me to comment on the plan.

Thanks...

Geoff Noakes
San Francisco CA
[attachment "Warner_Valley_DEIS_081709_web.pdf" deleted by Sean Eagan/YELL/NPS]

NA_Deifenbach-1

Comment noted. Commenter refers to the comments of Mr. Geoff Noakes. Please see response to NA_Noakes.

Comment Letter NA_John Dozier

Comment Letter NA_Dozier

I fully support the restoration of the Drakesbad meadow to its natural state. NA_Dozier-1

John Dozier
docjdozier@yahoo.com

NA_Dozier-1

Comment noted.

Comment Letter NA_Freeman

September 2, 2009

Superintendent
Lassen Volcanic National Park
P.O.Box 100
Mineral, CA 96063

Dear Madam,

My family began going to Drakesbad 18 years ago and still anticipate the thrill of going back. After reading the in depth DEIS report we feel alternative one (do nothing) is the only alternative acceptable to us, although there are elements to the others that are appealing. Any return of the beautiful and peaceful Sifford meadow to a boggy and mosquito breeding fen is repulsive to us. NA_Freeman-1

The Siffords deeded Drakesbad to the National Park Service with the proviso that it be kept open to the public in perpetuity. The few cattle ranch improvements that he made such as draining the meadow and planting non-native grasses have transformed a swamp into a beautiful meadow for viewing, hiking and riding. He also planted numerous poplars, only a few of which remain. We would like to see more planted. NA_Freeman-2

Draining Dream Lake as in alternative two would be devastating to us. Our entire family consisting of three generations enjoys it. Your drainage tubes are working and the beavers are still there for viewing enjoyment. Perhaps deepening the lake and rebuilding the dam as in alternative 3 would be a future improvement, but not at the sacrifice of changing the meadow as it is now. NA_Freeman-3

Moving the horse corrals, generator and concessionaire housing would be helpful by making the cabins by the corral more desirable, and putting the managers over the dining hall would make it more comfortable for them. Keeping the Duplex for visitors would make sense, as it holds a lot of people. NA_Freeman-4

Your plans for upgrading the ranger station, fee station, campground access roads and parking are all worthy, for future consideration, but not if it means destroying the meadow and losing Dream Lake. NA_Freeman-5

Comment Letter NA_Freeman

One problem not addressed in the reports is the balky sewer system. Is it possible to remedy that situation outside of the DEIS? NA_Freeman-6

Finally there is one item outside of your report that I would like to see addressed. When you mention Dream Lake, you talk about sightseeing, canoeing and fishing. Since the National Park Service no longer allows fish stocking, the Sifford Lakes, Corral Meadows, Hot Springs Creek and Kings Creek have become fish sterile, or nearly so. Yes, Dream Lake has a few tiny brook trout available.

But gone are the days when I introduced my son, and now grandsons to fishing in the park with success, to whet their fishing appetites. NA_Freeman-7

Your stated objective is to return parklands to their former state and enhance visitor enjoyment. However it seems to me that the former objective (drain Dream Lake, make a fen out of Sifford meadows and no fish stocking) may be incompatible with visitor enjoyment. And what good is a National Park without visitor enjoyment. NA_Freeman-8

Thank you. We are truly blessed to have such a gorgeous park nearby.

Sincerely, James H. Freeman

Comment Letter NA_John Freeman

NA_Freeman-1

Comment noted. The perception that restoration of the meadow will result in a "boggy and mosquito breeding fen" is one that is repeated in many comments received in the EIS and yet nowhere in the document is there evidence that restoration would have these results. See the responses to comments NA_WatsonC-1 through NA_WatsonC-6 for further details.

NA_Freeman-2

Comment noted.

NA_Freeman-3

Comment noted. Also see the responses to comments NA_BellC-19 and NA_BellC-20 regarding the analysis surrounding the decision to restore Dream Lake to a riparian habitat.

NA_Freeman-4

Comment noted.

NA_Freeman-5

Comment noted.

NA_Freeman-6

Comment noted. Renovating the sewer system is not a part of the proposed project and is therefore not evaluated in the Environmental Impact Statement.

NA_Freeman-7

Comment noted. The 2006 National Park Service Management Policies, Section 4.4.3 describes the policy for fish stocking in the parks:

> *"The Service manages harvest to allow for self-sustaining populations of harvested species and does not engage in the stocking of plants or animals to increase harvest. In some special situations, the Service may stock native or exotic animals for recreational harvesting purposes, but only when such stocking will not unacceptably impact park natural resources or processes and when*
>
> - *the stocking is of fish into constructed large reservoirs or other significantly altered large water bodies and the purpose is to provide for recreational fishing; or*
> - *the intent for stocking is a treaty right or expressed in statute, other applicable law, or a House or Senate report accompanying a statute.*
>
> *The Service will not stock waters that are naturally barren of harvested aquatic species."*

NA_Freeman-8

There are several purposes of the proposed project, outlined on pages 1-1 and 1-2 of the EIS, all of which aim to enhance visitor enjoyment while addressing some of the natural and cultural resource conflicts. See the response to comment NA_BellC-16 regarding the balance between cultural resource preservation and the overall mission of National Parks.

Comment Letter NA_ Fritz and Betty Jon Grimmer

Comment Letter NA_Grimmer

Agrium

11/15/09

Superintendent
Lassen Volcanic National Park.

We read in the newspaper that you are planning to make changes in the Drakesbad area. Our family has been spending time in that area for many years, and we do not want to see it changed. We like it the way it is & has been for many years. We are asking you to leave it alone. NA_Grimmer-1

Also, with the economy in such bad shape, this seems like a bad time to be spending money that isn't absolutely necessary. NA_Grimmer-2

Thank you for your attention.

Fritz & Betty Jon Grimmer & family

NA_Grimmer-1

Comment noted. The commenter expresses support for the No Action Alternative, however many of the changes included in the preferred alternative are proposed to address pressing issues of safety and ecological health.

NA_Grimmer-2

Please see response to comment NA_BellC-2 regarding funding the proposed project.

Comment Letter NA_Eric Haseleu

Comment Letter NA_Haseleu

I urge you to leave Dream lake and do what ever is necessary to fix the dam, I would also request that if you are working on the dam that you dredge the lake. This is a great place for public recreation and a great asset to Drakesbad. My family and I use this area to fish and to boat as well as hiking around it. It is a beautiful spot and should be maintained for public use. NA_Haseleu-1

Eric Haseleu
Burlingame, CA 94010
10/2/2009

NA_Haselue-1

Comment noted. Also see the responses to comments NA_BellC-19 and NA_BellC-20 regarding the analysis surrounding the decision to restore Dream Lake to a riparian habitat.

Comment Letter NA_Hinman

925 SW Fountain Street
Pullman, WA 99163
November 15, 2009

Superintendent Darlene Koontz
Lassen Volcanic National Park
P. O. Box 100
Mineral, CA 96063

Dear Superintendent Koontz:

I am submitting comments on three aspects of the Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement, namely: (1) the Drakesbad Meadow, (2) Dream Lake, and (3) the concessioner employee housing facilities.

(1) Drakesbad Meadow. Alternatives 2 and 3 in the Draft EIS propose flooding the Drakesbad Meadow to recreate the extensive wetland environment that existed prior to the Drakesbad historic period (1900-1952). To accomplish this environmental modification, the Park proposes to eliminate or block flow paths that currently drain the meadow. The Draft contends that the action will reverse adverse changes made to the meadow by the Sifford family, who operated Drakesbad as a resort from the early 1900s until the Park assumed ownership in 1958 (after 1951 a concessioner was in charge). Furthermore, the Draft claims that the changes would restore fen-forming conditions in parts of the meadow and respond to National Park System directives to increase wetlands areas in the national parks. NA_Hinman-1

However, in justifying the proposed action the Draft fails to take proper account of Drakesbad as a cultural and historic resource in the Park, part of the Drakesbad Guest Ranch Historic District included on the National Register of Historic Places. The changes proposed quite possibly will degrade the visitor experience at Drakesbad by restoring the swamp or bog conditions and mosquito infestation that the Siffords found intolerable from the earliest time of their arrival. Roy Sifford, in relating the family's fist trip to the future site of Drakesbad in 1900, reports, "After pulling the hills we dropped down into a large willow patch—wound through them for a quarter mile and came in sight of Drake's house. The land in front or east of the house had been grubbed of willows and some grubbing and drain ditching had been done on the south side. **The meadow to the west of the house consisted of willows and bog holes, infested with mosquitos (sic). (We would spend many years clearing it out by hand with a mattock, pick, shovel and axe.)"** [Roy Sifford, *Sixty Years of Siffords at Drakesbad*, Lahontan Images, Susanville, CA (1994), page 7] Sifford makes other references to work on the meadow in his published book, but more extensive comments are available in the hand written manuscript for the book, a copy of which has been available in the Drakesbad Lodge. In this document Sifford writes about Drakesbad through the years from 1900. Much of the grubbing and draining of the meadow seems to have been done in the early years after 1900. He later summarizes the situation as it existed in 1951, "Now that Drakesbad was a pretty complete going business and a beautiful valley the pressure was rising to get that guy Sifford out and let the government and park service take it over because the lands were bordered by and surrounde (sic) bye (sic) national park lands. The Siffords came to Drakes and bought the valley and the land from Mr. E. R. Drake in the year of 1900 – long before Lassen Park had even been thought of. **Through the** NA_Hinman-2

Comment Letter NA_Hinman

years the Siffords had cleared and drained a big mountain swamp – thick with willows – potholes and mosquitoes – mostly with 'grubbin hoe and axe and sweat.'" [*Sixty Years Siffords Drakesbad Dedicated Mother Father Pearl*, manuscript, page 90]. The early motivation for clearing and draining the meadow apparently included making it accessible, tolerable, and attractive for the family and guests at Drakesbad. The contention in the Draft EIS that the "meadow was modified in the early 1900s with hand constructed drainage ditches to drain and irrigate Drakesbad meadow for livestock grazing" (Draft EIS page 3.2-2) is only partly true. The discussion in Sifford's book, page 103, for 1942 about entering the cattle business at Drakesbad in order to take advantage of the large amount of forage available, shows that the meadow changes up to that time were not done solely for livestock grazing. NA_Hinman-2' cont.

It is Sifford's Drakesbad that is the subject of the Drakesbad Guest Ranch Historic District, not the pre-Drake wilderness promoted in Alternatives 2 and 3 in the Draft EIS. The Draft is inadequate and deficient in its treatment of the meadow because (1) it has failed to take account of the major adverse impacts on the Drakesbad cultural landscape and visitor experience that blocking the current system of rills and ditches draining the meadow may have and (2) it has failed to recognize that the proposed action may produce major adverse changes to the historic district from conditions during the historic period. In correcting these deficiencies, the Park Service must give as much weight to the cultural resource as to the natural resource and reconcile the action with the National Register designation of Drakesbad. It does not seem reasonable for the Park to conclude that increasing the depth of peat in parts of the meadow by an inch in the next 250 years justifies severely degrading the quality of the Drakesbad cultural environment in the meantime. The Park should not return the meadow to the environmental conditions that existed before the historic period unless it demonstrates that the return will not reproduce the same mosquito infested bog holes and swamp conditions that it did before. NA_Hinman-3

(2) Dream Lake. The preferred alternative in the draft proposes "removing Dream Lake Dam and restoring the area to a stream channel." (Draft page 2-39) The Park agrees that this action destroys a contributing structure to the Drakesbad historic district but contends that the riverine conditions that replace it may provide a comparable visitor experience. However, riverine conditions are already available at Hot Springs Creek. Dream Lake offers a different experience. The authors of the Draft EIS do not seem to recognize the importance of Dream Lake as part of the historic district. For example, one comment in the Draft observes that Juniper Lake can replace Dream Lake "for lake based recreation." (Draft page 4.6-3). However, a Dream Lake visit is often the introduction or reintroduction of a guest to Drakesbad. For many visitors, the first activity after arrival and checkin is a short walk up to Dream Lake to look around. One can hardly equate this experience with getting back into the car and driving 20 miles to Juniper Lake. NA_Hinman-4

Dream Lake is in a somewhat long term precarious state, as the Draft indicates, partly because the Park has neglected dam maintenance and partly because the Park has protected beavers that close the spillway. The Park's beaver solution has been to install a subsurface outflow "beaver deceiver" system, which includes the unsightly flexible tubing stretching down the outflow channel. Moreover, cutting off the surface outflow allows a scum to grow on the lake surface, detracting from its appearance. NA_Hinman-5 cont.

Alternative 3 solves the stability and beaver problems by rebuilding the dam. I favor that solution. It probably does cost more than Alternative 2 because the new dam would require importing and placing new fill and riprap material. The Park apparently does not want to spend the money. The Draft does not give any information about the cost. NA_Hinman-5 cont.

It is interesting to note Sifford's approach to repairing the dam after the washout in 1952. "There was one item, I did have taken care of, and that was the repair of Dream Lake, which the dam had washed out during the flood of 1952. I contacted my friend Slim Malvich, to bring two big dump trucks loaded from Chester to fill in the break of the dam. It was quite a sight how those drivers made the maneuvers there and they had the fill in place within ten minutes." (Sifford book, 1994, page 133) That solution has now lasted 57 years. NA_Hinman-6

As an inexpensive alternative to eliminating the lake or rebuilding the dam now, I suggest the following course of action. Remove the beaver deceiver and open the present spillway. Keep the spillway open by relocating any beaver that settles in the lake. Lower the bottom level of the spillway to reduce the lake level and provide more freeboard at the dam. The situation would be better stabilized, and the lake lifetime extended. If a future flood breached the dam again, the Park could decide at that time whether to rebuild. The Bureau of Reclamation has concluded that the breaching would not cause a dangerous flooding downstream. Meanwhile, the lake would remain a valued contributing resource to the historic district. With respect to beaver control at the spillway, the Park has administratively decided to manage beaver as a native species in the Warner Valley despite the absence of any evidence that beavers were present before their introduction in the last century -- Sifford says 1952 (Sifford book page 135). Under these circumstances, relocating an individual beaver pest that is damaging a contributing structure included on the National Register would be a reasonable action. NA_Hinman-7

(3) Concessioner employee housing facility. In the preferred alternative the Park proposes to house most Drakesbad employees in tent cabins at a service facility located outside the historic district. This seems an odd proposal. Were employees queried about preferences? Will any heating or lighting be provided for the tents? Even a fairly well insulated tent surface would have an R value of only about 3. It should be possible to do much better than that by adding ceiling and wall insulation in the dormitory building included in Alternative 3 without affecting the appearance of the building. Furthermore, the total outside wall and ceiling area of the proposed cluster of tents would be two or three times the corresponding area for the dormitory. For both of these reasons, the dormitory would be much more energy conserving than the tents. NA_Hinman-8

The Draft makes passing reference to "installing a hybrid power system utilizing solar and geothermal sources which would utilize clean energy technology and move away from fossil fuel use." (Draft page 2-45) There is no indication in the Draft that these sources could supply a significant fraction of electric power or heat required at the supply facility. Significant solar electricity production or heating would require considerable collection area and substantial backup, neither of which is discussed in the Draft. Geothermal energy is potentially a reliable heat source, but there is no information in the Draft that geothermal sources are close enough and large enough to be practical? The treatment of this subject in the Draft is inadequate. NA_Hinman-9

Alternative 2 does not discuss the disposition of the tents in the winter. Will they remain in place, or will they be dismantled? In either case the winter presents more of a problem for the tents than for the dormitory. NA_Hinman-10

The service center appears to be located in an isolated area distant from the main cluster of Drakesbad buildings. I believe that a closer location would be better from a convenience, safety, and management perspective. NA_Hinman-11

The draft does not discuss the interim employee housing situation before the new service center is built except to say that the present housing is insufficient and substandard, which is certainly true. To improve present conditions, the trailers formerly in use at the site should be returned to provide employee housing until the new facility is available. NA_Hinman-12

Overall, the discussion of concessioner employee housing in the Draft is deficient in a number of respects and needs to be revised. Adequate housing for the Drakesbad managers, not discussed in the Draft except to say that it would be on site, should have a high priority.

Sincerely yours,

George W. Hinman .

Comment Letter NA_Hinman

NA_Hinman-1

The commenter raises the concern that the proposed action may produce major changes to the historic district from conditions during the historic period and that "the Park should not return the meadow to the environmental conditions that existed before the historic period unless it demonstrates that the return will not reproduce the same mosquito infested bog holes and swamp conditions that it did before."

The perception that restoration of the meadow will result in a "boggy and mosquito breeding fen" is one that is repeated in many comments received in the FEIS and yet nowhere in the document is there evidence that restoration would have these results. See the responses to comments NA_WatsonC-1 through NA_WatsonC-6 for further details.

In addition, please review the response to NA_BellC-16 regarding the NPS's mandate. In addition, the purpose of the Environmental Impact Statement is to explore several options for the management of its resources, including an environmentally preferred alternative. Resource management may contain a balance of retaining the historic character of the meadow, while allowing flexibility in treatment to meet both natural resource goals and preservation of cultural resources.

NA_Hinman-2

See response to NA_Hinman-1.

NA_Hinman-3

See response to NA_Hinman-1.

NA_Hinman-4

The commenter is concerned that the importance of Dream Lake as part of the historic district is not recognized. While the objective of management of cultural resources and contributing resources, as outlined in the *Cultural Landscape Report for Drakesbad Guest Ranch*, is preservation, this does not preclude the park management from exploring or implementing other options. As described in the response to NA_Hinman-1, the EIS is required to explore an environmentally preferred alternative.

NA_Hinman-5

See responses to NA_BellC-2, NA_BellC-19 and NA_BellC-20 regarding the analysis surrounding the decision to restore Dream Lake to a riparian habitat.

NA_Hinman-6

The commenter offers another alternative to removing or rebuilding the Dream Lake Dam and this information is noted. See response to NA_BellC-20.

NA_Hinman-7

The commenter recommends that beavers should be relocated. See response to NA_BellC-21.

NA_Hinman-8

Tent cabins are commonly used throughout the National Park system. The proposed tent cabins will provide more space and safer accommodations for employees than the existing housing. The alternatives proposed for the employee housing were developed by park management. Utilities will be available at the new service center to support the functional needs of this facility (power, water, sewer, etc…).

NA_Hinman-9

Preliminary estimates for photovoltaic electricity generation, solar domestic water heating and solar pool heating for the swimming pool and future housing have confirmed their feasibility.

NA_Hinman-10

As described on page 2-30 of the EIS, the tent cabins would sit on a permanent wood deck supported by concrete piers. The tents would be constructed of a seasonal steel frame and fabric enclosure. The canvas portion of the tent cabin would be taken down at the end of the season (in fall) and put up (in spring) each year, leaving the platform in place year-round.

NA_Hinman-11

The commenter expresses concern that the proposed service center location is in an isolated area distant from the main cluster of Drakesbad Guest Ranch buildings. One of the main objectives of this plan is to relocate non-contributing functions and structures out of the historic district and to provide greatly improved concession employee housing. The location of the proposed service center was selected based on the criteria that it be constructed outside of the historic district and in a feasible and convenient location. It would be .25 miles (1,375 feet) east from the center of Drakesbad Guest Ranch dining hall. There will always be concession staff onsite 24/7 at Drakesbad Guest Ranch, with the intent that the managers will be living onsite.

NA_Hinman-12

The commenter has requested that the trailers formerly in use at the site be returned to provide employees housing until the new facility is available. The presence of the trailers in the historic district is in violation of the Concession Contract, which does not allow trailers to be used in the Park. Interim housing for concession employees is not included in this plan.

COMMENTS ON THE WARNER VALLEY COMPREHENSIVE SITE PLAN DRAFT ENVIRONMENTAL IMPACT STATEMENT, AUGUST 2009

To: Planning Team at LAVO_planning@nps.gov
From: Sarah Keller
169 Eagle Ridge Rd., Fairbanks, AK 99712
keepmoving@runbox.com

I am submitting my comments to you regarding the "Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement (DEIS). Thank you for this opportunity to comment.

To introduce myself, I am a recently retired wildlife biologist with a Masters of Science degree in Natural Resources. My professional wildlife research and management work (with both state and federal agencies in Alaska) has been in coastal and inland freshwater wetlands as well as in the arid mountains of central and northern Alaska, bringing me broad experience over the years. I have fond memories working at Lassen Park one summer of my undergraduate years some 30 years ago as a Volunteer-In-Parks (VIP) in some of the more "remote" areas. More relevant to this forum, I have been a frequent guest at Drakesbad since early childhood, enjoying the active as well as relaxing aspects with my family and many friends. Within the last twenty years, I have introduced my own family (husband and two daughters) to Drakesbad, and they too regard Drakesbad, and the Park as a whole, as having great intrinsic value. Thus I bring a scientific perspective as well as a vested interest in the health and welfare of Drakesbad and the Park. It is with this, I read through the DEIS.

I would also like to say that I am not one to "not change a thing" about the Park or Drakesbad in particular. After careful evaluation, changes and improvements should be made while balancing cost, safety and need as well as balancing the requirements of a National Historical Landmark.

The DEIS document as presented appears to be one in which a great deal of time has been put into its organization; it is easy to follow. Additionally, there has been much attention placed on making a visually striking document full of good quality color photographs and aesthetically appealing graphics. I commend the contractors who created such a handsome document. NA_Keller-1

However, I do have some pragmatic comments on the content. In brief, my comments can be summarized as:

1) Having a Plan that takes into consideration the funding for this Park in cost-containing times, thus keeping it the Plan realistic and feasible.
2) Having a Plan that uses information based on strong scientific work rather than conjecture.
3) Doing the least additional environmental damage in any work that is deemed necessary. NA_Keller-2

This plan has been in the works for some time. However, times have changed, administrations have changed, and budgets have gotten even tighter. Thirty years ago when I was volunteering to do avian research for the Park, Lassen was little recognized as an important national treasure except by local residents, a loyal following and those lucky enough to stumble upon it. I can't see how that has changed much. Therefore we must have a Plan that is cost effective and within the Park's capabilities. NA_Keller-3

So in that light, the work that seems most reasonable to do is:

- **The maintenance of the buildings including the living facilities for all of the management staff**

The practical maintenance of living facilities for those who operate and support the facilities makes good sense from every angle. Suggesting that they be moved offsite and into facilities as tents, is unsafe, impractical and not reasonable. If one needs to use temporary trailers in the rebuilding of permanent housing, then that should be allowed until they are not needed. If they are unsightly, then that should be an incentive to get the new buildings done. But the staff needs housing onsite.

- **The replacement of the bath house**

The rot in the supports for the bathhouse has gone from quaint looking to down right unsafe. NA_Keller-4

- **Maintenance of the sewer system**

Again, the investment of financial resources into the maintenance of basic facilities makes good sense and makes for a good outcome for all who visit.

- **Protection of the historic defining meadow**

I have more to say about this central feature, but here I mean to limit degradation through any further work without first careful scientific review by licensed hydrologists.

Accomplishing these basic reasonable goals makes Drakesbad livable in a practical sense. It also helps to maintain valuable historic and much appreciated characteristics of Drakesbad. Once it is certain that these basic items can be achieved (paid for), then one can begin to do more.

There are gaping holes in important information needed to support this Plan, yet it is odd that there are no proposals to fill these gaps. I will suggest some specifics, but first let's note that we are fortunate that we are now actively encouraged by the current Department of the Interior to use the scientific method as the primary technique to evaluate natural resources. With its use, we can work through a reliable decision making process. To not do so, to structure a DEIS on anything less than real science, does a disservice to the process as well ultimately to the natural resources in the Park.

To review: the scientific method is based on gathering observable, empirical, and measurable evidence subject to reasoning. The process must be objective to reduce biased interpretations of the results. It is also important to have full disclosure so that all data and methodology are available for careful scrutiny by other **independent** scientists, thereby allowing independent researchers the opportunity to review the drawn conclusions and even verify the results by attempting to reproduce them. It also allows statistical measures of the reliability of these data to be established. NA_Keller-5

One of the best (and the one accepted by the scientific community as a whole) means to evaluate any particular study is to have it reviewed by other **independent, qualified** researchers. The "conversation" that results from the review process helps establish in the scientific community whether or not particular results from research can be accepted as valid. Not until this occurs can a piece of research be considered true.

Thus, the lynchpin for much of what is surmised about the Drakesbad Meadow comes from a Master's thesis that is unpublished and therefore not subjected to the independent review process. All assumptions stemming from this work should not and cannot be used until independent,

qualified reviewers review it. This means much the DEIS needs rewriting and most certainly rethinking of the proposals based upon it. NA_Keller-5 cont.

If the Drakesbad Meadow is truly of concern, then there needs to be a hydrologic study done by an **independent, professionally licensed** hydrologist. In addition, there needs to be a collection of historic data so that the human alterations to can be understood and taken into consideration. Is it truly the goal to revert it to some pre-human influence state (and just what did that look like?) and how does that fit with the National Historic Landmark designation? Indeed all of this costs money, but spending money on valid studies is better than basing an entire report and any subsequent work on potentially erroneous information. This cannot be understated. NA_Keller-6

In addition, there other open flaws in the DEIS. Where is the information on seismic studies? Where are the geologic studies? Given the volcanic characteristic of the area, where is the assessment and monitoring of arsenic and mercury in the water? Much data are lacking considering the acknowledged physical features of this Park. As mentioned before, I understand funding has been a historic problem, but the Plan needs a basis in fact. NA_Keller-7

In this current plan, there are a number of additional "concerns" and proposed actions that are problematic as they also stem from no reliable data and offer no real benefit. Proposing them continues to detract from the credibility of the entire document in my opinion.

For example, the small volleyball area does not block the view, is not in a wet area (again, where is the hydrologic study to substantiate this claim?) and is in an area that has been used for years for a variety of sports, serving the cultural needs for group recreation. When not participating in recreation myself, I have often enjoyed watching others play <u>with</u> the scenic backdrop; viewing and recreation are not conflicting pursuits. To eliminate this would go against one of the stated primary purposes of the Plan to "…improve the visitor experience through recreational opportunities and the protection of wilderness values." (Page 1-1.) NA_Keller-8

The campground proposals are also inadequately researched. Where is the hydrologic study to substantiate the statement about the parking area is located in a wetland area? What exactly is the current harm in the location of campsites above the water and how is this documented? It is hard to come up with solutions when the problems are poorly defined. NA_Keller-9

The proposal to close the drive-through loop behind the meadow-lining cabins has been poorly thought out. The location of the road, the trees and the boulders makes the current routing practical. To do anything else would seem to require the removal of trees and boulders so that cars could back out instead of continue through on a loop. It does not seem a reasonable or well thought out proposal. NA_Keller-10

Last, but certainly not least, is Dream Lake. Let me succinctly say the following:

The beavers in the area were apparently introduced long ago and have done what beavers do. It seems more than reasonable to control them through a trap and removal system and, although perhaps they will never be eradicated, their numbers and their actions can be controlled.

As for the existence of the lake, I ask for the hydrological study and for the complete historic information before jumping to conclusions on what to do. Just because some have thought the lake is "unnatural and therefore bad" does not mean it is fact. It should be continually up for review. What are our current notions of value about this site? It has long been a reliable feature of the Drakesbad experience for visitors, new and old. NA_Keller-11

The "beaver deceivers" are unsightly and an obvious visual blight more so than the old dam itself. They should be removed. They are incompatible with the environment, historic or otherwise. No further environmental damage should be incurred in their removal. Beaver dam construction in this area can be controlled by the aforementioned trap and removal program.

As for the dam, it seems that the best solution is to let nature take its course. If the dam breaks, little damage from that can occur, as there is so little water behind it as the lake has filled in with silt and organic matter. However, the lake has long served as a pleasant area for visitors as well as a nesting area for birds. (I remember the fish too, but understand stocking is no longer an option.) If the dam could be repaired (there is no information about cost), perhaps minor work could maintain this pleasant visitor site. Again, a small investment in maintenance goes a long way. NA_Keller-11 cont.

There are many issues I would like to comment on, but I think it might detract from my adamant statements regarding the importance of hard science as an important component of any DEIS. Of all that needs to be addressed in this document, its absence is the most glaring. NA_Keller-12

Thank you again for the opportunity to comment.

Comment Letter NA_Keller

NA_Keller-1

Comment noted. Drakesbad Guest Ranch is a National Historic District, not a National Historic Landmark. The National Historic Preservation Act allows for changes to Historic Districts.

NA_Keller-2

Comment noted.

NA_Keller-3

Comment noted.

NA_Keller-4

The commenter is concerned that the living facilities for the staff will be moved offsite and into unsafe facilities. The proposed location for the new facilities under Alternative 2 and 3 are not considered offsite. See response to NA_Hinman-11. The new facilities are designed in order to provide safer and more spacious living quarters. See response to NA_Hinman-10, regarding the design of the tent cabins.

NA_Keller-5

The commenter states that approach for the Drakesbad Meadow restoration is based on an unpublished Master's thesis and therefore not subjected to the independent review process and its assumptions should not be accepted. Please see the response to comment NA_WatsonS-2.

NA_Keller-6

The commenter states that a hydrologic study be performed by an independent, professionally licensed hydrologist for the Drakesbad Meadow. If Alternative 2 is selected and the restoration of Drakesbad Meadow moves forward, the NPS would prepare a Restoration Implementation Plan for Drakesbad Meadow. This plan will be developed in a concerted effort with the NPS Water Resources Division and peer reviewed by NPS wetland specialists in other parks.

NA_Keller-7

See paragraph two on page 3.1-2 of the EIS, which cites USGS studies in addition to the *Drakesbad Guest House, Seismic/Structural Evaluation*.

NA_Keller-8

See response to NA_BellC-9.

NA_Keller-9

NPS staff have verified that the day use parking area is in a wetland area based on existing vegetation type and soil. This particular project component was initially described as one of the goals for the Comprehensive Site Plan in the Park's *General Management Plan*. In compliance with the National Park Service Management Policies (4.6.5), "The Service will implement a "no net loss of wetlands" policy. In addition, the Service will strive to achieve a longer-term goal of net gain of wetlands across the national park system through restoration of previously degraded or destroyed wetlands. When natural wetland characteristics or functions have been degraded or lost

due to previous or ongoing human actions, the Service will, to the extent practicable, restore them to predisturbance conditions."

As explained on page 2-13 and 2-14 of the EIS, the existing concerns with the location of the lower campground are related to visitor safety from the steep slopes and the effects of erosion on the creek.

NA_Keller-10

Project designs would minimize tree removal. The NPS will remove less than five trees each with less than 18 inches in diameter. Depending on the exact road layout selected, all trees may be retained.

NA_Keller-11

The Dream Lake Dam alternatives proposed in this project are supported by a geotechnical investigation and water quality analysis conducted by Kennedy/Jenks Consultants, Balance Hydrologics, and Ltd. Engineering. The resulting technical report is called, *Final Title I Schematic Design Report*, May 2007. Also see responses to NA_BellC-2, NA_BellC-19 and NA_BellC-20 regarding the analysis surrounding the decision to restore Dream Lake to a riparian habitat.

In addition, the dam has undergone a thorough public vetting process beginning with a public scoping for the original Dream Lake Dam Management Plan initiated on April 4, 2003 with the publication of the Notice of Intent to prepare an EIS in the Federal Register. All comments received from that scoping process have been considered in this current EIS process. Public scoping meetings were held for the Dream Lake Dam Management Plan on November 4-7, 2002 in the towns of Chico, Red Bluff, Redding, and Chester.

NA_Keller-12

Comment noted.

Comment Letter NA_Larson

LESLIE LARSON
<lflarson@frontiernet.net>
To Sean_Eagan@nps.gov
08/24/2009 10:48 AM
Subject Re: Warner Valley DEIS

Hi Sean,

I found the DEIS as you indicated and read it. Unfortunately I can't attend any of the public hearings.

I'd be grateful if you could pass my comments to park management. Overall, the DEIS is very well done, congratulations.

I strongly support the park's efforts to restore the Drakesbad meadow, return the Dream Lake area to its natural riparian & wetland habitat, and expand/restore the trail system. NA_Larson-1

Day use area: While I like the idea of converting the lower campground to a day use area, I think it may be too far from the Drakesbad meadow area trail network, especially Devil's Kitchen, for many day trippers. This will almost surely lead to greater use of the Drakesbad lodge parking area, creating tension between day trippers and the concessionaire/lodge guests. Wish I had a suggestion to offer...perhaps add some more parking stalls to the Lodge parking area? NA_Larson-2

Campgrounds: It concerns me that the camping area & roads will be improved to provide access for "small RVs." Drakesbad/Warner is a paradise for those fleeing from suburbanization. Anything that facilitates access for RVs with satellite dishes & generators, ATVs, motorcycles, etc. would be a real blight on the area. If improvements made to facilitate horseback riding also facilitate more noisy and suburban styles of "camping" -- then I oppose them. NA_Larson-3

Devils Kitchen: It would be great to have some interpretive signage...I know it's difficult/expensive, but an explanation of the geology & vulcanism of the area would be just great. NA_Larson-4

Thanks for your hard work and consideration of my comments,

Leslie Larson
Cupertino/Lake Almanor peninsula

Comment Letter NA_Leslie Larson

NA_Larson-1

Comment noted.

NA_Larson-2

The proposed location for the new day use parking area was chosen because it would be in an area that is already impacted (from the campground) and there is enough room to fit 20 new parking spaces. The new trail proposed in Alternatives 2 and 3 (approximately 485 feet in length) will be built between the existing trailhead parking lot and the lower campground, providing a fairly short connection to the existing trail system.

NA_Larson-3

The commenter states concern that the camping area and roads will be improved to provide access for "small RVs." The proposed project does not include provisions for providing access for small RVs. Perhaps, the commenter read this under Section 2.3, Actions Considered but Dismissed, where this was described on page 2-57 of the FEIS as an action that was dismissed from incorporation into this plan.

NA_Larson-4

The commenter would like to see interpretive signage included at Devil's Kitchen. Interpretive signage is not included as part of the Comprehensive Site Plan and was therefore not evaluated in the Environmental Impact Statement. Comment noted.

Comment Letter NA_Lesea

Austin Lesea <Austin.Lesea@xilinx.com>
To LAVO_Planning@nps.gov
08/26/2009 10:40 cc austin
<austin@deniseleseaphoto.com>,Denise Lesea <denise@deniseleseaphoto.com>
Subject L76(LAVO): Comments on proposals and alternatives -- a "vote" for Alternative 2 (Preferred)

Greetings,

After reading the materials, and having been a visitor and guest of Drakesbad since 1962 until now, here are my comments:

I agree with Alternative 2 (Preferred). NA_Lesea-1

An improvement in any plan would be an ozone treatment system for the pool water. An ozone treatment system powered by the solar panels would be a suitable environmentally friendly alternative. NA_Lesea-2

The loss of Dream lake is perhaps inevitable. I have seen it degrade over time (it was never as delightful as the Sifford Lakes on the ridge) even back in the 1960's. One approach would be to allow the Beavers to re-engineer 'Dream Lake': remove the 'beaver deceivers' and let nature's wetland engineers to their job. NA_Lesea-3

I believe a low-impact trail to the area would provide a very instructive and visually delightful scene of what a small confluence of small creaks and seeps provide naturally. Perhaps some removal of the dam face is required, I will leave that up to the experts. NA_Lesea-4

In regards to the rest of the plan, it appears to be consistent with preserving the guest experience, while taking everything else into account.

Lastly, I am all for removal of the generator, and replacing it entirely with an alternative form of energy. Since a water turbine would potentially change the character and nature of some small outflow, I would propose instead a solar plant, with gelled electrolyte battery storage for the electrical needs. A water turbine located near the water tank would provide for year round abundant electricity due to the amazing amount of water coming down the hillside, installing and maintaining such a plant might be considered to have too much impact on the site (even though it would be invisible to a visitor unless they walked to the turbine).

Understandably, the costs of solar energy are much higher than the cost of a diesel generator, but the removal of the generator, would remove the noise (and smell) and improve the experience many fold. Resiting the generator to another location will do little to remove the negative effects of the generator. You may not hear it, but the delivery of diesel by tanker, and the smell of diesel, and the black plume of exhaust will still be very noticeable. NA_Lesea-5

Austin Lesea

Comment Letter NA_Austin Lesea

NA_Lesea-1

The commenter supports returning Dream Lake to a riparian habitat. This comment is noted.

NA_Lesea-2

The commenter suggests an ozone treatment system for the swimming pool. This comment is noted, however it is beyond the scope of the EIS, was not proposed as part of this project and therefore its environmental impact was not assessed. As an operational issue, this would be addressed under the concession services contract.

NA_Lesae-3

Comment noted.

NA_Lesea-4

Comment noted.

NA_Lesea-5

The NPS is committed to providing energy efficient and clean energy technologies in its parks. Accordingly, the Comprehensive Site Plan has investigated the feasibility of alternative energy technologies where it is feasible to do so in Warner Valley. These areas include the concessionaire housing and service center, and the bathhouse. While the diesel generator will continue to be used, it will be part of a hybrid power system including photovoltaic panels, thereby making the entire energy system more efficient. In addition, the generator will be relocated out of the historic district / core area of Drakesbad Guest Ranch to the new service center where all viable energy sources will be assessed.

Comment Letter NA_Donald McCormick

Comment Letter NA_McCormick

DONALD R. McCORMICK
181 WATER VIEW WAY
FOLSOM, CA 95630
916.988.9629

October 22, 2009

Superintendent
Lassen Volcanic National Park
PO Box 100
Mineral, Ca. 96063

Re: Draft EIS, Warner Valley Comprehensive Site Plan

Dear Sir or Madam:

I have reviewed the draft Environmental Impact Statement (EIS) for the Warner Valley Comprehensive Site Plan and believe you have performed exceptionally well. I like the way you have preserved the traditional visitor experience, yet proposed some major improvements that appear to have minimal impact in Warner Valley. I have only a couple of small suggestions. NA_McCormick-1

Regarding the Concessions housing…. I hope you can include the framed building listed in Alternative 3 for the Preferred Alternative (2) rather than tents. The young people who typically work at Drakesbad work hard, long hours and deserve as much comfort as you can provide whilst still preserving a wonderful experience. They need good protection in weather extremes that can occur during the season and the frame building will do the job. NA_McCormick-2

Regarding the Bathhouse. I suggest you see if you can retain changing rooms in the Preferred Alternative as you did in Alternative 3. A changing room is handy for early morning swims in cold weather to return to the cabin area. NA_McCormick-3

Regarding Dream Lake, I am glad to see you proceeding with its demise.

I enjoyed reading about the many improvements you plan and look forward to visiting often in the future. Thanks for allowing me to comment. NA_McCormick-4

Sincerely,

NA_McCormick-1

Comment noted.

NA_McCormick-2

The commenter would like to see the framed building for the concessionaire housing that is presented in Alternative 3 selected over the tent cabins proposed in Alternative 2. Comment noted.

NA_McCormick-3

The commenter would like to see the changing room at the bathhouse retained in Alternative 2. Comment noted.

NA_McCormick-4

The commenter supports returning Dream Lake to a riparian habitat. This comment is noted.

Comment Letter NA_Noakes

In the Site Plan, we are presented with 3 options: Alternative 1 (do nothing), Alternative 2 (preferred by the NPS), and Alternative 3. I approached the Site Plan thinking I would select among the 3 alternatives for each issue -- what I found was that I chose "Alternative 1 (no action)"
for each issue. I'll comment on the issues I feel strongly about. NA_Noakes-1

DRAKESBAD GUEST RANCH

Concessioner Housing and Service Center: I can't answer this. Who pays for this (the guests, the NPS, the Concessioner)? What does the Concessioner think is best? I think the that the Concessioner does a very good job at managing Drakesbad and making it such a wonderful experience for so many people. At the same time, the Concessioner runs a business and I wouldn't want to saddle him with costs that he doesn't see the need for. NA_Noakes-2

Small Scale Features: Same as the above issue. NA_Noakes-3

Bathhouse and Pool: the pool area and bathhouse are fine as is; guests at Drakesbad do not expect (or want) a 5 star hotel and pool experience. NA_Noakes-4

Volleyball Court: this area is in constant use during the day, and at night we have an adults vs kids wiffle ball game in this area. It is the one level area close to the lodge. Please leave it as is. NA_Noakes-5

DRAKESBAD MEADOW: there seems to be a group of people (who don't stay at Drakesbad) that want to convert the meadow into a fen bog (which translates to a mosquito marsh to those of us that do stay there). Please leave it as is. NA_Noakes-6

DREAM LAKE DAM: Alternatives 2 and 3 call for the removal of the dam and therefore the lake (as is seen in Figure 2-17b). Dream Lake may be one of the most important things about Drakesbad, especially for small children.
It is close to the lodging areas and therefore easily accessible. The canoe allows many, many families to enjoy this small lake somewhat privately, to see all sorts of wildlife (birds, fish, beavers, frogs, and snakes), and to enjoy a quiet moment on the lake. Drakesbad sees families come back year after year, and generation after generation, and everyone I've met at Drakesbad has a story of what Dream Lake meant to them as kids. You are now the fourth superintendent that I've written to about Dream Lake; I would guess that many guests feel this way. My sense is that most people want the NPS to find a way to fix Dream Lake's problems, but not at the expense to taking it away forever. NA_Noakes-7

I thank you in advance for allowing me to comment on the plan.

Thanks...

Geoff Noakes
San Francisco CA

Comment Letter NA_Geoff Noakes

NA_Noakes-1

Comment noted.

NA_Noakes-2

Please see response to comment NA_BellC-2 regarding funding the proposed project.

NA_Noakes-3

Please see response to comment NA_BellC-2 regarding funding the proposed project.

NA_Noakes-4

Comment noted.

NA_Noakes-5

Please see the response to comment A_WFEN-3 regarding the relocation of the volleyball court.

NA_Noakes-6

The perception that restoration of the meadow will result in a “boggy and mosquito breeding fen” is one that is repeated in many comments received in the FEIS and yet nowhere in the document is there evidence that restoration would have these results. See the responses to comments NA_WatsonC-1 through NA_WatsonC-6 for further details.

NA_Noakes-7

The commenter states that both Alternatives 2 and 3 propose the removal of Dream Lake Dam. The Comprehensive Site Plan calls for the Dream Lake Dam removal under Alternative 2 only. Alternative 3 proposes that the dam be reconstructed, see page 2-50 and 2-51 of the EIS.

Also see responses to NA_BellC-2, NA_BellC-19 and NA_BellC-20 regarding the analysis surrounding the decision to restore Dream Lake to a riparian habitat. The alternatives proposed under this plan are the result of years of planning efforts, studies, public input, and park management discussions. Please see the response to comment NA_Hinman-6 for further information on this process.

Comment Letter NA_OtwellH

To: Superintendent
Lassen Volcanic National Park
P. O. Box 100
Mineral, CA 96063
LAVO_Planning@nps.gov

From: Heather Bell Otwell
P. O. Box 201
Lucerne Valley, CA 92356
otwellfam@sisp.net
760-248-9211

Date: 11/20/09

RE: (Draft) WARNER VALLEY COMPREHENSIVE SITE PLAN – EIS

I am grateful and privileged to have the opportunity to respond to this proposal. Drakesbad has been a part of my family for as long as I can remember. Some of my fondest memories have root in vacationing at Drakesbad Guest Ranch. My husband and I have recently been able to extend that experience to our three daughters who are the fifth generation of our family to call Drakesbad a place of their own. I can't express the joy and security it brings to be able to share with them a place that has been untouched by time and untainted by society.

With all this in mind, I would like to comment on a few of the NPS's proposals for Drakesbad Guest Ranch. Considering the fact that my great grandfather knew Mr. Sifford personally, I feel compelled to respond in order to preserve the history and value of Drakesbad as it was originally intended. Keep in mind that we are talking about Drakesbad Guest Ranch. The current experience of this special place is directly connected with the hard work and vision of the Sifford family. NA_OtwellH-1

My overall interpretation of the proposal is that it is meddling with the history, culture and value of Drakesbad as it was originally intended. The meadow has always been to us the heart and axis of the ranch. Aesthetically it is inseparable from the ranch as a whole. It breaks my heart to even imagine the heart of Drakesbad being used as a Park experiment.

The removal of the Volleyball court is silly. What party is being represented with this proposition? This is too absurd and ridiculous to even comment on. I would think this would be an embarrassment to the authors of the EIS. NA_OtwellH-2

The Head of the Valley Trail is a gem. I see no need to have this trail maintained or opened to horse traffic. Those who take this trail find value, enjoyment and solitude in its remoteness. NA_OtwellH-3

Overall, I am pleading with the NPS to take into consideration the heart and soul of this special place. In a letter from Gilbert E. Blinn, Superintendent of the NPS, to Emily Sifford in 1992, he states, "(Roy) is missed, but his positive spirit and concern will continue to be present in our deliberations and planning sessions. He will not be forgotten." I hope this is true of the present representation of the NPS as well. NA_OtwellH-4

Drakesbad has always been and always will be a part of who I am. It is an ineffable feeling to have my children experience the Drakesbad that I knew and loved as a child. The same

Drakesbad my dad knew and loved as a child. It is quiet, free from distraction and safe. Quality people make it a joy to socialize and new friends are made every year. Knowing the world is rapidly changing, we plead with you to take whatever precautions are necessary to ensure Drakesbad is not polluted and/or meddled with beyond repair. This would be a tragedy and a disgrace to the Sifford family as well as the many devoted people who have poured their hearts and souls into maintaining the original vision of Drakesbad Guest Ranch. Thank you for your time and consideration in these matters. NA_OtwellH-4 cont.

Sincerely,

Real Values

Yes, take my father's house and lands,-
Take everything that Greed demands;
His stocks, his bonds, his money too,-
Dear John, I give them all to you.

But leave to me that knotted cane,
That squeaky rocker, old and plain,
Where oft he eased his aching head,
And leave me, too, the books he read.

Leave that old album, running o'er,
With ancient and forgotten lore;
The broken banjo that he strummed,
And that old Bible that he thumbed.

When sordid pel has turned to rust,
And stocks and bonds have gone to dust,
These treasures that I ask of thee,
Will sweet communion hold with me.

-Alexander Sifford

Comment Letter NA_Heather Otwell

NA_OtwellH-1

Comment noted.

NA_OtwellH-2

Please see the response to comment A_WFEN-3 regarding the relocation of the volleyball court.

NA_OtwellH-3

The commenter refers to the statement on page 2-21 of the EIS, which describes the consideration of the "reopening, preservation, and maintenance of historic trails" including the Head of the Valley Trail. This is an action that the NPS is considering in the future, but is not part of this project and is therefore not assessed in this Environmental Impact Statement.

NA_OtwellH-4

Comment noted.

Comment Letter NA_OtwellJ

November 20,

Dear super Intendint,

This is Juliana Otwell. I am writing this because of the deci-sions you whant to make. Draksbad is Awsome how it is. I Love
Horses→ horses. I'm a horse freak! I cant go out of my parents sight unless someone they know is watching us. And if your going to move the horses, then we cant go and see them while our parents watch us from the dinner!!! Why whould you do this? So People can walk farther to give the horses a carrot??!! Why do you whant to move it!? I Love hearing them niegh while were playing and eating. And If you move it, we can't say: "Mama, were going over there to see the horses" No. They'd have to stop what they were doing and take us there. And Also, we couldn't go on the bridge where the trail through the medow is! The rides wouldn't be as long ether!

NA_OtwellJ-1

Comment Letter NA_OtwellJ

Every minut of riding counts to my sisters and I. We love riding. Being able to took out over the medow while we listen to the horses feet/hooves go Clomp, Clomp on the bridges, so Please, Plee-aaasseee don't. For us. Pretty Please!

NA_OtwellJ-1 cont.

Medow→ The medow, It is so Beutiful! I LOVE Seeing the deer froloking about with their young ones at their heels. The Bucks with their big antlers! Last time we came Krysti-an (my sis) almost got to pet a doe. But if the medow is all Swampy, Then the deer would fall and mabe drown! And the trail in the Center of the medow, We couldn't walk on it if it was all Swampy!!! Mr. Sifford said not to change the medow. If he were here, he'd probably fire you! For these Absolute Impudent Ideas!!! I am so mad and Angeiry and heart broken that you want

NA_OtwellJ-2

NA_OtwellJ-3

Comment Letter NA_OtwellJ

to change this Creaction
that God gave us!!
Mr. Sifford worked hard
to make Drakesbad the
way it is and you want to
chang it!.b That's like
you making a 1,999 foot
Scupter and then
come and destroy it
and make a new one
in yours Place!! Its rude,
mean!!!

NA_OtwellJ-3 cont.

Drakes bad IS Awsome. These
Ideas are Stupid and Dumb,
Apsolutly Inpudent, No for
good and Apsolute nusance!!
The Volly ball Cort!. You
Can walk ten feet to-
see the mountain!! The
trail! I dont know much,
but Its Dumb!!!!! And
other Silly ideas. I
dont let up fights! I
dont give up!!!! I
will prove that I am
Chuck Bells granddaug
-ter and Chucks granddaugh
-ter doesnt-give-up!!!
If you win this fight,
I will go mad!!! I
must say those are nons
-nce! Goodbye!!! Change your mind!

Julia

NA_OtwellJ-4

Comment Letter NA_Juliana Otwell

NA_OtwellJ-1

The Environmental Impact Statement proposes two alternatives for moving the corral from its existing configuration, which is needed because of concerns about the pollution caused by the horses affecting the meadow. Alternative 2 does not move the horses, but rather expands the upper corral in its existing location. Alternative 3 proposes to construct a corral in a new location to house the horses. However, rides would still begin at the existing corral location, therefore the rides would not be any shorter.

NA_OtwellJ-2

The proposal to restore the meadow under Alternatives 2 and 3 would create new habitat for many species. There is absolutely no danger of deer drowning in the new habitat that would be created. Wetlands are important ecosystems that support many plants and animals and this condition (known as biodiversity) needs to be protected to make sure the ecosystem is healthy. The National Park must find a balance between preserving cultural resources (the parts of Drakesbad Guest Ranch that Mr. Sifford built) and protecting and restoring natural resources. The proposed projects would construct new trails (boardwalks) across the parts of the meadow that become wetland after the restoration, so that people can enjoy walking across it and get to the other side. These types of trails are used in many National Parks.

NA_OtwellJ-3

The NPS purchased the land at Drakesbad Guest Ranch from the Siffords. Due to our stewardship role, park staff needs to be proactive in protecting cultural resources and protecting natural resources. Under the proposed changes, the meadow would still look beautiful.

NA_OtwellJ-4

The commenter’s concerns are noted. The proposed plan was developed to improve Drakesbad Guest Ranch for the people who care deeply about it and to protect its valuable resources – the structures and the natural resources – from deteriorating in the future.

Comment Letter NA_Diane Prettyman

Comment Letter NA_Prettyman

9.18.09

Hello,

Please leave Drakesbad alone.

Fix the dam (Dream lake) if you must, but, if it is not broken, why fix(?) it?

Sincerely,

Diane Prettyman

Prettyman
1198 Denton Way
Redding, CA 96002

NA_Prettyman-1

NA_Prettyman-1

Comment noted. See responses to NA_BellC-2, NA_BellC-19 and NA_BellC-20 regarding the analysis surrounding the decision to restore Dream Lake to a riparian habitat.

Comment Letter NA_Puterbaugh

I tried to send these comments on the web site, however it said that the comment period was closed and you could not accept my comments! It is still November 21st 2009. I have written hundreds of comments, some up until midnight of the day they are due!

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for Warner Valley. My family has been traveling to the Warner Valley for 30 years. We were able to stay at the ranch in the past, but it is far above our budget now, which I see you have identified as a consideration in the document. I hope you will consider the idea of setting aside a few rooms for lower income population. The Ranch is very expensive, exclusive and lovely. Unfortunately, the great majority of the US population cannot afford to enjoy it! I think it should be considered to have one day a week for public use of the pool. NA_Puterbaugh-1

Or, people who stay in the campground should be able to use the pool for an extra fee. Some consideration should be made for the public to use this public treasure! Especially as you plan to upgrade the facility. NA_Puterbaugh-2

More of the population should be able to enjoy this beautiful hot spring in the middle of one of the largest fen's in the US!

We would also like to encourage the idea to have some huts set up for winter use for ski-in guests.

I agree with the plan to restore the ecological processes in the Drakesbad meadow. I also agree with the plan to remove the Dream Lake Dam. I walked there with my son when he was 4 years old, he is now 34 years old and it is a wonderful memory. I'm sure we will hike there again with his daughter in the coming years to see the restored creek and meadow. NA_Puterbaugh-3

It is a very good idea to move the horses out of the meadow. I like horses, even though hiking on their trails is not always pleasant.

The odor of the manure can be strong in the resort. As you say, the hay introduces non-natives and the manure gets into the watershed. Moving them is important. However, I do not agree with removing a 48" tree to make a corral for them. There must be a way to save such a large tree! NA_Puterbaugh-4

I agree the pool needs to be upgraded. It is getting old and will be irrepairable if you wait too long. However, as mentioned before I think there should be some way the public can use this pool if you are going to spend thousands of dollars on this upgrade. Public funds necessitate public access. Why would you have to put in a solar array, can't you use hot water power? There is plenty of energy coming right out of the hillside next to the pool! NA_Puterbaugh-5

Moving the campground away from the creek is a good idea, although some access points, trails, platforms may be built for the campers to access the creek. Campers will continue to use the creek for swimming, sunning and fishing, so there should be some permanent paths, a beach access or something so the erosion does not continue. NA_Puterbaugh-6

SMALL RVs would be OK to provide access for. NOT HUGE, ENORMOUS RVs with generators, lights, and many of the toys that come with them!

NO ATVs, OHVs etc. should be allowed in this sensitive area. Too many campgrounds and trails are being adversely affected by them. NA_Puterbaugh-7

Thank you for considering my comments. Please keep us updated on the progress of the plan.

Sincerely, Patricia Puterbaugh

Comment Letter NA_Puterbaugh

Lassen Forest Preservation Group, 1540 Vilas Rd., Cohasset, CA. 95973

Comment Letter NA_Patricia Puterbaugh

NA_Puterbaugh-1

Comment noted.

NA_Puterbaugh-2

Comment noted. The current plan does not include provisions for winter huts to be set up for ski-in guests.

NA_Puterbaugh-3

The commenter supports restoring Drakesbad meadow and returning Dream Lake to a riparian habitat. This comment is noted.

NA_Puterbaugh-4

The commenter is concerned with the removal of a 48” tree to make way for the corral. The NPS will minimize or avoid tree removal wherever possible.

NA_Puterbaugh-5

The commenter mentions that there should be some way the public can use the swimming pool. Pool management is part of the concessionaire agreement. Currently, members of the public who pay for a meal at Drakesbad Guest Ranch can use the swimming pool. The commenter also asks why hot water power was not considered as an alternative energy source to heat the swimming pool. The swimming pool is currently heated with hot springs water from a source near Hot Springs Creek. The Geothermal Steam Act of 1970 directs the NPS to protect thermal resources (NPS 2006 Management Policies section 4.8.2.3). During the environmental review process for the Southwest Visitor’s Services Facility, geothermal energy was considered, but not analyzed due to the potential impact on thermal resources. For this project preliminary estimates for photovoltaic electricity generation, solar domestic water heating and solar pool heating for the swimming pool and future housing have confirmed their feasibility. At this point, further analysis and cost considerations would drive the decision to pursue these options. For now, park managers are concerned that there could be too much impact with the use of thermal energy and further assessment of this issue is outside the scope of this project.

NA_Puterbaugh-6

Comment noted. The commenter recommends including access points/trails/platforms for the campers to access the creek. If the lower campground is relocated, the NPS would continue to monitor use of the creek and possibly develop some access points depending on the change in visitor use to that area as a result of the implementation of the plan. Additionally, the NPS would provide a safe location for campers to cross the road to access the creek.

NA_Puterbaugh-7

The commenter is concerned with allowing large RVs, ATVs, and OHVs to access Warner Valley. The NPS doesn’t prohibit RVs from entering and using Warner Valley, though there are warning signs near the park boundary cautioning large vehicles and especially vehicles towing trailers from going any further along the road. Small camper vans and truck campers frequently use the campground. In regards to ATVs, only street legal licensed vehicles are allowed in the park and on park roads. This means street legal (licensed) off-road motorcycles are allowed, but not ATVs or quad-runners because they are not street legal in California.

Comment Letter NA_Margaret Rader

Comment Letter NA_Rader

Superintendent Lassen Volcanic National Park,

After reviewing the action alternatives described in the paper, I would prefer the Park remove Drean Lake Dan, and allow the area to revert to a riparian/wetland complex.
I love the Park, and feel so fortunate to live in close proximity. And I believe that National Parks should remain in their natural state to be enjoyed and appreicated. NA_Rader-1

Margaret Rader, Chico, California

NA_Rader-1

The commenter supports returning Dream Lake to a riparian habitat. This comment is noted.

Comment Letter NA_Scuri

Anita L. Scuri and James D. Simon
simonscuri@excite.com

3 November 2009

Lassen Volcanic National Park
Warner Valley DEIS
P.O. Box 100
Mineral, CA 96063

Re: Comments on Draft environmental Impact Statement / Warner Valley Comprehensive Site Plan

Please consider and include in the record our comments on the draft environmental impact statement (DEIS) and proposed Warner Valley Comprehensive Site Plan (Plan). We live in Sacramento but have regularly stayed at Drakesbad Guest Ranch over the last 20 years or so. Our last visit was in September of this year. Lassen National Park is one of our favorite places. However, there are few places to stay in or near the park itself. Thus, Drakesbad is a rather important piece of the park.

Development of the plan began in 2002. The 2002 effort was expanded in 2004. Much has happened since that time. Government coffers and the U.S. economy were vastly different at the time the proposed plan was being developed. The DEIS offers three alternatives. The two proposed "action" alternatives are ambitious and costly. We would recommend a fourth alternative to you, one that would first fix the infrastructure and later, when funds were available, would then address one or a combination of the two action alternatives. NA_Scuri-1

One of the purposes of the project is to effectively address visitor services, infrastructure improvements, and sustainability and efficiency of facilities and utilities. (section 1.2.1) During our last visit to Drakesbad in September 2009, it was quite apparent that the basic infrastructure desperately needs repair. The trails from Drakesbad are in terrible shape. The bridges and boardwalks are worn out and in a state of disrepair. The exteriors of the buildings (and, in some cases the foundations) need considerable work. The corral fences are falling apart—which happens when large animals lean against them every day. These issues need to be addressed soon or there will be no Drakesbad Guest Ranch to preserve. Before you construct a new "service center" for concessioner staff housing, you should plan to fix and perhaps improve what is there right now, since there is likely to be a considerable lag time in constructing entirely new housing. NA_Scuri-2

The tent cabins proposed in alternative 2 are not sufficient for employees, so we would encourage you to use alternative 3's plan for a wood frame dormitory instead. This would provide better protection against thunderstorms, cold (it gets quite cold before the season ends in October) and bears. NA_Scuri-3

Comment Letter NA_Scuri

Please consider dividing your plan into at least two phases, beginning with the repairs needed to preserve the structures and infrastructure at Drakesbad. Those are critical. After that and when funds become available, your preferred alternative (alternative 2) would generally be our preferred alternative as well. NA_Scuri-4

As indicated above, while we generally support alternative 2, we would encourage you to modify it with the following elements from alternative 3.
(1) Minimize the number of paths and define trails with low stones in keeping with historic trails [pedestrian circulation at Drakesbad];
(2) Re-face exterior porch concrete block walls with stone veneer at cabins #9 through 12, rather than replacing the entire walls with stone walls [land use]; NA_Scuri-5

In addition, we would support removal of Dream Lake Dam (alternative 2) and restoration of the area to its prior floodplain and associated wetlands. We also support general protection and restoration of the meadow/fen, which should include filling in or otherwise addressing the multitude of hidden ditches that cross various parts of the meadow (Drakesbad Meadow). NA_Scuri-6

We appreciate the hard work that has clearly gone into developing this plan and hope you will consider our comments. We may be reached at the email address above. Anita Scuri may be reached during the work day at 916-574-8220.

Sincerely,

Anita L. Scuri

James D. Simon

Comment Letter NA_Anita and James Scuri

NA_Scuri-1

Please see the response to Comment NA_BellC-2.

NA_Scuri-2

Comment noted. Please see the response to Comment NA_BellC-2.

NA_Scuri-3

Tent cabins are commonly used throughout the National Park system. The proposed tent cabins will provide more space and safer accommodations for employees than the existing housing. As described on page 2-30 of the EIS, the tent cabins would sit on a permanent wood deck supported by concrete piers. The tents would be constructed of a seasonal steel frame and fabric enclosure. The fabric would be removed at the end of the season.

NA_Scuri-4

Please see the response to Comment NA_BellC-2.

NA_Scuri-5

Comment noted.

NA_Scuri-6

The commenter supports returning Dream Lake to a riparian habitat and restoring the meadow. This comment is noted.

Comment Letter NA_Lee and Misty Tyree

Comment Letter NA_Tyree

Darlene Koontz and Staff:

I have read and reviewed the Site Plan and I completely concur with my friend Geoff Noakes. I see no reason to write a separate opinion. Please count my wife Misty and I as having the same position as Geoff on all issues. We will look forward to many more summers of visiting Lassen Volcanic National Park, and particularly Drakesbad. NA_Tyree-1

Lee and Misty Tyree

From: Geoff Noakes [mailto:geoffnoakes@hotmail.com]
Sent: Monday, November 16, 2009 8:48 PM
To: 'darlene_koontz@nps.gov'; 'lavo_planning@nps.gov'
Subject: Darlene-comments on the Warner Valley Comprehensive Site Plan/Draft EIS
(August 2009) I've read the entire plan twice and thought about it. In this email, I will only comment on the issues that affect the Drakesbad area -- that is the part of Warner Valley that my family has enjoyed every August for the last 20 plus years. During that time, we've enjoyed almost every major natural feature of Lassen Volcanic National Pack: Cinder Cone, Lake Juniper, Hat Creek, all sports of geothermal features, Willow Lake, the ice caves, the Lassen Summit, the lava tubes, Kings Creek, Mr. Harkness, Bumpass Hell, the amazing lava beds, Lake Manzanita, the Kohm Yah-mah-nee visitor center, etc.

In the Site Plan, we are presented with 3 options: Alternative 1 (do nothing), Alternative 2 (preferred by the NPS), and Alternative 3. I approached the Site Plan thinking I would select among the 3 alternatives for each issue -- what I found was that I chose "Alternative 1 (no action)"
for each issue. I'll comment on the issues I feel strongly about.

DRAKESBAD GUEST RANCH

Concessioner Housing and Service Center: I can't answer this. Who pays for this (the guests, the NPS, the Concessioner)? What does the Concessioner think is best? I think the that the Concessioner does a very good job at managing Drakesbad and making it such a wonderful experience for so many people. At the same time, the Concessioner runs a business and I wouldn't want to saddle him with costs that he doesn't see the need for.

Small Scale Features: Same as the above issue.

Bathhouse and Pool: the pool area and bathhouse are fine as is; guests at Drakesbad do not expect (or want) a 5 star hotel and pool experience.

Volleyball Court: this area is in constant use during the day, and at night we have an adults vs kids wiffle ball game in this area. It is the one level area close to the lodge. Please leave it as is.

DRAKESBAD MEADOW: there seems to be a group of people (who don't stay at

Comment Letter NA_Tyree

Drakesbad) that want to convert the meadow into a fen bog (which translates to a mosquito marsh to those of us that do stay there). Please leave it as is.

DREAM LAKE DAM: Alternatives 2 and 3 call for the removal of the dam and therefore the lake (as is seen in Figure 2-17b). Dream Lake may be one of the most important things about Drakesbad, especially for small children.
It is close to the lodging areas and therefore easily accessible. The canoe allows many, many families to enjoy this small lake somewhat privately, to see all sorts of wildlife (birds, fish, beavers, frogs, and snakes), and to enjoy a quiet moment on the lake. Drakesbad sees families come back year after year, and generation after generation, and everyone I've met at Drakesbad has a story of what Dream Lake meant to them as kids. You are now the fourth superintendent that I've written to about Dream Lake; I would guess that many guests feel this way. My sense is that most people want the NPS to find a way to fix Dream Lake's problems, but not at the expense to taking it away forever.

I thank you in advance for allowing me to comment on the plan.

Thanks...

Geoff Noakes
San Francisco CA

NA_Tyree-1

Comment noted. Please see response to NA_Noakes.

Advanced Geologic Exploration, Inc.
Scientists of the Earth™
PO Box 1956, Chester, CA 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

November 21, 2009

Superintendent Darlene M. Koontz
Lassen Volcanic National Park
P.O. Box 100
Mineral, CA 96063

RE: Comments to the Warner Valley Comprehensive Site Plan, Draft Environmental Impact Statement, August 2009; Lassen Volcanic National Park, Mineral, California

Dear Superintendent Koontz,

Thank you for the opportunity to comment on the Warner Valley Comprehensive Site Plan, Draft Environmental Impact Statement (DEIS). It is understood that the purpose of the DEIS is to address natural and cultural resource conflicts and to improve circulation and parking within the upper Warner Valley (a.k.a. Hot Springs Creek drainage), and more specifically at the Drakesbad Guest Ranch Historic District. The National Park Service (NPS) has four primary purposes for which a "Management Plan" will be assembled

1. Will provide improvements to the visitor experience and safety through improvements to the infrastructure and relocating infrastructure so that it would less visible;
2. Will provide ecological restoration of the larger Warner Valley fen and wetlands areas;
3. Will provide for the repair or removal of the Dream Lake Dam and restoration of the damaged riparian/wetland complex;
4. Removal of the non-contributing features from the Drakesbad Guest Ranch Historic District.

A number of "alternatives" have been proposed for specific projects, with the NPS providing preferences to those options. The DEIS has been prepared in accordance with the National Environmental Policy Act (NEPA), which is required for federal government agency actions that "significantly affect the quality of the human environment". As a tool for decision-making, an EIS describes the positive and negative environmental effects of proposed agency action - and cites alternative actions. The public commentary to the DEIS in an integral part of the NEPA process.

The comments provided herein are in regards to either the proposed projects and their options or additional projects not proposed. My qualifications to provide these comments are both personal and professional. My personal experience spans more than 50 years of family vacations at the Drakesbad Guest Ranch (a.k.a. "Drakesbad"). Moreover, my family's heritage at Drakesbad spans five generations, from my great-grandparents, who were there in 1926, to my children, all of which gives me the opportunity to gain valuable insights to the ways of Drakesbad-past as well as providing knowledge for Drakesbad-future. Hence, it will be my children's children and their "*Drakesbad Experience*" that will be impacted the most by this

proposed management plan. Therefore, I have personal preferences for some of the proposed projects.

My professional background includes being a licensed professional geologist in the State of California. I have more than 30 years of academic and professional experience, much of which has consisted of soils research. I am familiar with the NEPA process whereby these projects are proposed. My geological consulting firm, Advanced Geologic Exploration, Inc. (AGE), has an office in Chester, located 17 miles east of Drakesbad, whereby I use my scientific understanding of the region to operate my business. In addition, I performed two geological research projects within the area covered by the DEIS, and in particular the "Drakesbad Meadow":

- Draft Phase 1, Geological Map of the Hot Springs Valley, Lassen Volcanic National Park, California; 2009, Advanced Geologic Exploration, Inc. (See Proposal)
- Draft Phase II, Soils and Tephra Sampling, Geological Research Project, Drakesbad Meadow, Lassen Volcanic National Park, California; 2004, Advanced Geologic Exploration, Inc. (See Proposal)

These projects were funded by the Lassen Park Foundation (LPF) and Geologist in the Parks (GIP- See Photo submission). The Soils and Tephra Sampling report has been accepted by the NPS and was quoted as a source in the DEIS. The Draft Geological Map of the Hot Springs Valley is included with these comments. It has recently been redrafted in support of these comments. Please accept this document as a draft and understand that further revisions and peer review will be necessary to complete its authenticity. Nevertheless, it graphically illustrates a number of my comments with the DEIS.

Comments

The DEIS relies heavily upon Affected Environment (Chapter III) to make recommendations for the proposed projects. In particular and with reference to my areas of professional expertise are geology, hydrology, wetlands, seismology, and natural hazards. My personal comments are so noted for several other alternatives, whereupon I also provide my personal and professional preferences for selected alternatives.

Drakesbad Meadow

A considerable amount of the DEIS is focused on the restoration of the Drakesbad Meadow and a number of those projects rely on the alleged "fen". I am not convinced that fen-soils actually occur in Drakesbad Meadow. How the fen was determined is a curious story. In 2000, a Colorado State University professor, Dr. David Cooper, wrote a paper titled "*Restoration of the Drakesbad Meadow, Lassen Volcanic National Park, California*" whereby he proclaimed that the Drakesbad Meadow was a "fen of approximately 90 acres in size". Dr. Cooper continued to assert that a drainage network constructed by early settlers contributed to the degradation of the NA_WatsonC-1

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

fen soils and that immediate restoration was required to "reestablish the fen". Unfortunately, no data were presented supporting these statements, and neither were any investigative procedures as to how the soils had been degraded. It was assumed that these were degraded fen soils and restoration was needed. Furthermore, this paper was used to solicit a grant whereby one of his Masters thesis students was awarded the grant to study the "fen", its degradation, and propose and test restoration remedies. The result of this work culminated in the report, *Hydraulic Characteristics of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, California (Patterson and Cooper, 2005).*

Troubling about this sequence of events is that the Drakesbad soils were "assumed" to be fen-soils without any scientific data ever presented and studies never took on the task to determine if these were soils were actually fens. Nowhere in the Patterson and Cooper (2005) paper is there given a definition of a fen soil as per accepted standards, nor are there any the data supporting the soils meeting the fen criteria.

Fens are Histosols, which are a sub class of Hydric soils. The definition of hydric is "*of, relating to, or preferring a moist or wet environment*", which is appropriate for fen soils. According to the National Technical Committee for Hydric Soils (NTCHS), "*hydric soils are defined as soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil*" *(Field Indicators of Hydric Soils in the Unites States, USDA, 2002).* Saturation or inundation when combined with microbial activity in the soil causes a depletion of oxygen. This anerobiosis promotes a biochemical processes, such as the accumulation of organic matter and the reduction, translocation, and/or accumulation of iron and other reducible elements. These processes result in characteristic morphologies that persist in the soil during both wet and dry periods. NA_WatsonC-1 cont.

The basic indicators for a Histols soils are:

- Composed of at least 40 cm (16 in.) of organic soil material,
- Has a dominant chroma of 2 or less,
- Has a total organic carbon content (by weight) of 12-18% or greater, depending on the percent clay content of the soil.

If these criteria are met, then the soils can be classified as Histosols. Organic soils not meeting these indicators are either organic-rich mineral (mucky) soils, or mineral-rich soils. The Patterson and Cooper paper confirmed that sufficient organic content was present, however, did not evaluate the soils for chroma and percent clay content, as per the NTCHS criteria.

However, data presented by AGE (2003) used the the above criteria to determine soil classification, and the results indicated that <u>all of the soils studied within the Middle Drakesbad Meadow were classified as organic mineral-rich or mineral rich soils</u>. There were no indications of Hisotols, and thus no fen soils.

Therefore, there is a major discrepancy within the body of available data that supports the occurrence of fen soils in Drakesbad Meadow. As it turns out, the Cooper (2002) and Patterson and Cooper (2005) reports were not been peer reviewed by experts in soil science. However, it

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

should be noted that the AGE (2003) paper was peer reviewed by two members of the NTCHS committee with positive reviews. In fact, both reviewers said these soils are fascinating and need further study to fully classify them. There is the crux of the problem; not enough work has been done to fully classify the soils in the Drakesbad Meadow. There may be fen soils in the meadow; there may even be a unique type of "western mountain fen", as proposed by AGE (2003), but clearly not enough work has been done to say one way or the other.

Nevertheless, the initial assumption by Dr. Cooper that there were 90 acres of "fen" soils has been determined to be incorrect. Patterson and Cooper (2005) delineate only a small portion (a few hundred square feet at most) of the middle meadow as having organic-rich soils (they used the term fen). AGE (2003) showed only the north half of the middle meadow to have organic-rich soils and that the south half is an active flood plain where scour and fill processes dominate. No studies have been made on the lower or upper portions of Drakesbad Meadow. Both authors obtained samples from these areas, however, choose to focus their reports on the middle meadow. Furthermore, AGE noted that saturated soils also exist on the south side of Hot Springs Creek in the forest west of Dream Lake and should be evaluated further. NA_WatsonC-1 cont.

Hence, the DEIS is flawed in making any recommendations by supporting restoration of the Drakesbad Meadow until appropriate professional studies are completed.

In addition and in support of the MOU between the State of California and the federal government, investigators should also comply with professional licensing standards required by the State of California. Since soils are a branch of geology, then a registered professional geologist, a geotechnical engineer or a civil engineer would be required to certify any study that would be incorporated into any plan that would "significantly affect the quality of the human environment". All of the proposed projects in the DEIS regarding the Drakesbad Meadow have not been in compliance with these laws.

Therefore, and considering the lack of consensus from the researchers as to the existence of fen soils and the DEIS's projects involving the Drakesbad Meadow, I recommend the following before any projects concerning the Drakesbad Meadow are proposed: NA_WatsonC-2

1. Have the Patterson and Cooper Masters Thesis peer reviewed,;
2. Conduct a professional investigation of the resources as per NEPA requirements;
3. Assemble new recommendations as to preserving or enhancing the resource.

Ditches and Channels

Cooper (2002) supposed that the degradation of the meadow and the "fen" was caused by ditches constructed for de-watering purposes for hay and cattle farming by the early settlers. Patterson and Cooper experimented with measures to mitigate the affects of these ditches that consisted of placing steel barriers across the "ditches" to cause lateral saturation of the NA_WatsonC-3

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

surrounding soils. The effects of these measures were cataloged for a single season with positive results, and therefore, have been incorporated into project-level tasks in the DEIS.

This is troubling because it indicates there has not been an official study on the level of degradation of the soils, what is a ditch and what are natural channels, and if ditches are to blame for the degradation. Cooper merely said it was so and everyone has blindly followed along in agreement. NA_WatsonC-3 cont.

In September 2009, I was able to review the steel-plate barriers mitigation measures and it was questionable if they were truly effective. Water had ponded up behind the barriers and spread laterally from the "ditch" into the surrounding meadow, but by only a few tens of feet. Furthermore, water had run around the barrier and was actively eroding the soil in the bank. It was also apparent that this was not a ditch, but instead a natural channel (see Photo G-3).

According to the Webster's dictionary

- A "ditch" is a long, narrow trench in the earth, made by digging, usually for carrying water.
- A "channel" is the bed of a stream, river, etc.; the hollow or course in which a stream flows.

Since a ditch is a man-made feature, the excavated soils should be found adjacent to the feature unless they were carried away, and since it is the early settlers for whom it is presumed to have dug the ditches, this would be highly doubtful.

Although I have heard stories of ditches being dug in the meadow by Drake and the Siffords, I know of only three NA_WatsonC-4

1. The Drake ditch and its feeder ditches located in the lower meadow. This +100 year-old ditch was used to move water from the lodge and the surrounding meadow. There is a significant feeder ditch to the Drake ditch that begins a short distance into the meadow from bungalow #6. Excavated soils are adjacent to the ditch.

2. The upper meadow ditch network was constructed by the Siffords to move water from the north spring complex into the dry portions of the upper meadow. The ditch network is located between Spring Creek and Soda Springs where the NPS has constructed wooden foot bridges over the saturated areas. Excavated soils are adjacent to the ditches. These ditches are in relatively poor condition.

3. The Middle Meadow ditch is located at the southern end of the stone horse path where the NPS has constructed a wooden bridge. Dr. Cooper and I investigated this "ditch" in 2002, and while there was no clear evidence of spoils adjacent to the ditch, we concluded it is likely to be a ditch because it moves water to a drier portion of the meadow. This was supposed to be the test ditch for the initial steel-plate barrier mitigation test (see 2002 discussion); however, it was later learned that Patterson and Cooper had placed other steel-plate barriers elsewhere in the meadow. For

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

example, see Photo G-3 of a channel where there is currently a steel-plate barrier. Notice there are no spoils on either side of the channel while they are readily apparent in the Drake ditch photo.

It is unusual that more ditches are not found in the meadow considering the historic accounts. It is also interesting that other accounts of meadow disturbance are not visible today. However, AGE (2003) determined that the southern half of the middle meadow is an active floodplain where scour and fill processes dominate. Considering there have been at least six major flooding events in the valley since 1950, these man-made scars would have been "healed" by the deposition of layers of sand, silt and clay left behind after the flood events. Since there has been no ditch digging in the meadow since NPS assumed control of the lands the late 1950s, this may explain the absence of these features. NA_WatsonC-4 cont.

Nevertheless, there is a clear lack of understanding on what is a ditch and what is a natural channel in the Drakesbad Meadow. There is a simple way of determining a ditch vs. a channel and that is by its spoils from digging the ditch. The best time to make that observation is in late spring or early summer when the snow has melted and before the grass has grown. All of the previous season's grasses have been laid flat from the winter snows and the topography of the valley is readily apparent. The soil spoils from ditches are also clearly discernable. Therefore, if any study of these ditches should be performed at this time.

Therefore, I urge the NPS to conduct a ditch vs. channel study prior to any mitigation of the meadow.

In the advent that ditches are discovered and the mitigations measures outlined in the DEIS are proposed again, I am not sure this has been though out very well. Questions that come to mind are

1. With what material would the ditches be filled?
2. How would the material be transported to the fill site?
3. How would the ditches be filled if there is running water?
4. How would the fill material be stabilized so that erosion doesn't occur?
5. What kind of monitoring would be established?
6. Since it is fill, would a Storm Water Pollution Prevention Plan be prepared for the California Regional Water Quality Control Board?
7. Would a Stream Alteration Agreement be needed with the California Department of Fish and Game?
8. Since the action is filling in a waterway in a "wetlands", would the Army Corps of Engineers be involved?

NA_WatsonC-5

Of course, the project would have to overseen by a registered professional licensed in the State of California.

It seems as though the project of filling in ditches has good intensions, I just don't think it has been well conceived.

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

Small Burrowing Mammals

Small burrowing mammals (pocket gophers?) are prolific in the Drakesbad Meadow (See Photos). During the winter months, they live under the snow, eating through the thatch and making tunnels, sleeping areas, seed storage rooms, and gathering areas. While seemingly part of the natural environment, they have devastating effects on the organic horizons of the meadow. Sheet flow runoff from snowmelt gets into the burrows and erodes into the underlying soils. Channels can develop and further down-cutting occurs. NA_WatsonC-6

It is not understood if these mammals are native to the valley but they should be studied further to gain bettering understanding as to their role in the meadow's ecology.

Geology, Seismology and Natural Hazards

It is clear from the DEIS (Section 3.1) that the geology for upper Warner Valley is not well understood. I am aware of a number of geological reports written for the region, but only a few have specifically addressed the local geology to Warner Valley (a.k.a. Hot Springs Creek Valley). Therefore, I have completed a Draft Geological Map of Hot Springs Valley, which can be downloaded at this link (Geology Map). It has recently been redrafted in support of these comments. Please accept this document as a draft and understand that further revisions and peer review will be necessary to complete its authenticity. NA_WatsonC-7

Specifically, all the rocks exposed on the surface are of volcanic origin. They have been exposed to erosion and glaciation, and show a substantial amount of fracturing and faulting. There are a number of active faults in the area, the most prominent being the Terminal Geysers-Boiling Springs Lake Fault System. This fault has at least 25 feet of Holocene displacement and is the principal reason for the geothermal manifestations of Terminal Geysers and Boiling Springs Lake, as well as those near and in Dream Lake (See Discussion). This fault is part of the broader Stover Mountain Fault System, which has a number of strands and splays. NA_WatsonC-8

The U.S. Geological Survey, California Geological Survey and Pacific Gas & Electric Company have produced several reports on the historic seismicity and paleoseismicity of the region. Several faults capable of large (M +6.5) occur in the region, including the Stover Mountain Fault, The Almanor Fault and the Hat Creek Fault. Lassen Peak produces numerous earthquakes every year, however, this is typical of active volcanoes. I recommend that a new Probably Ground Acceleration (PGA) study be initiated because it clearly lacks current knowledge.

Of a particular geologic hazard are rock falls. Large rocks can be seen at various locations at the base of Flat Iron Ridge. Of particular interest are those east of Drakesbad and north of the Visitor Parking area. Some of these boulders are the size of large trucks; one was named by the Siffords as "Indian Rock". There are a number of spires on Flat Iron Ridge above this area that have yet to come down, but this is the area proposed for the new employee housing. I have serious doubts that this area would be suitable because of these geologic hazards; however, if NA_WatsonC-9

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

this site is still preferred, it would be advisable to have it investigated by a qualified engineering geologist.

Other geologic hazards that should be considered are volcanic eruptions, thermal outbursts, landslides, and liquefaction, and floods. I also recommend that an earthquake and volcanic hazard safety plan be developed for Drakesbad. NA_WatsonC-9 cont.

Therefore, I find the sections of geology, seismicity, and geologic/seismic hazards sections in the DEIS completely deficient. This should be improved and the implications rippled throughout the revised document.

Hydrology and Water Quality

I have large concerns that the basis for the surface and subsurface hydrology for the Drakesbad Meadow is predominantly from the Patterson and Cooper (2005) report. First, the report has not been peer reviewed, and second, I personally witnessed the installation and some of the monitoring of the piezometers that were used in the analysis. Several errors were made, including not providing seals, which immediately discounted the possibility of perched groundwater or hydrostatic pressures. NA_WatsonC-10

In regard to water quality, a number of geothermal manifestations contribute to the water of Hot Springs Creek. Geothermal fluids are known to contain high levels of mercury and arsenic, as well as other potentially hazardous elements. To my knowledge, this has not been well studied by the NPS, however, could play an important role in a future management plan. NA_WatsonC-11

Dream Lake

In 2002, I performed a bathometric study of Dream Lake. Since that time, I have noticed that it is slowly filling in. The sedimentary fans from several contributing creeks are prograding into the reservoir. It seems as though if left to its own course, Dream Lake would naturally fill in over time and become a tarn. Personally, I prefer this option rather than either its reconstruction or restoration, both of which seem to entail monumental logistical and financial tasks. I believe it is understood that there is no safety issue of the dam were to breach. Also, what of the current ecology of Dream Lake? I recommend that a study be conducted prior to any projects involving the dam. NA_WatsonC-12

However, what is really in need of restoration is the borrow pit where the dam material came from. It is located on the hill south of the dam. There are old dozer cuts, parts of equipment and an overall unsightly condition. Also needing attention is the removal of extraneous supplies from the beaver deceiver installation procedures. These areas could also use some restoration.

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

Historic Garbage Dumps

Although not addressed in the DEIS, the historic garbage dumps should be attended to in this management plan. It was common practice to bury the garbage from the Drakesbad Guest Ranch. There are two known locations of historic garbage dumps

1. In the forest west of the upper Drakesbad Meadow;
2. In the ravine east of the Upper Warner Valley Campground.

There are multiple locations of burial pits west of the upper Drakesbad Meadow. One is at the meadow-forest margin west of the Drake Lake Trail. It is a relative small and contained site, consisting of a few specific pit locations. There is a large burial pit-complex located west of the Drake Lake Trail. It appears as though some of the burials were light on cover fill, as there is steel trash spread over a wide area. Bears probably went through the material shortly after burial. There is a small skid-trail that leads up to the dumpsite that will also need restoration.

The trash dump east of the Upper Warner Valley Campground is in the ravine just down from the Warner Valley Road. It is readily apparent by the abundant steel food cans scattered about. I remember that it was more exposed when I was younger, so the NPS may have performed some reclamation since.

The vintage of these trash dumps suggests the possibility of hazardous substances (pesticides, cleaners, petroleum products, etc.) could be buried and may be impacting groundwater. Of all the projects proposed in the DEIS, I was surprised that this one was not one of them. I urge the NPS to add the cleanup of these trash dumps to their projects lists. NA_WatsonC-13

Miscellaneous Personal Preferences.

Below are my personal preferences with regard to specific projects.

Warner Valley Road

I was pleased to see that erosion control measures will finally be establish on Warner Valley Road, including cross culverts and drainage gutters. The runoff from along side the road is substantial during the spring snowmelt and during heavy thunderstorms. I would suggest that a licensed engineer or geotechnical engineer review the plan and that the California Regional Water Quality Control Board be advised of the activities, the latter of which may require a Storm Water Pollution Prevention Plan with annual Best Management Practices (BMPs) maintained. NA_WatsonC-14

I think the idea of providing two-way traffic and dust suppressants on Warner Valley Road is absurd. I think the NPS could also clean up the old telephone wire lying in shambles along the road. NA_WatsonC-15

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

I have no problem in moving the fee station to the proposed location or providing a new access road to the Ranger Station water tank. I am unsure where rock headwalls would be installed and if they are necessary. Please elaborate. NA_WatsonC-16

There are a number of grand viewsheds along the road that could enhance the visitor experience. Pullouts with footpaths to the views could be a low-cost addition. NA_WatsonC-17

Campground, Trail and Day Use Parking

I am not in favor of relocating the Day Use Parking facility to the lower campground or anywhere else. I think it is fine where it is. I am not aware that the soils in the vicinity of the parking area have been studied in order to indicate they are wetland soils. In addition, the restoration costs would be substantial. If more parking is needed, perhaps it could be accommodated at the upper campground where the campground host now resides. NA_WatsonC-18

I like camping at the lower campground and have camped there several times in the last ten years. Some camp spots are right next to the creek and provide a wonderful experience, as well as quick access for fishing or swimming. I don't feel that road dust is much of a problem for most of the campers. I think the camping experience at the upper campground would be compromised if it were reorganized to accommodate five more spaces. NA_WatsonC-19

I am not in favor of boulder-lined parking spaces in the Upper Warner Valley Campground, and I don't think there is enough usage at the campgrounds to justify putting in a new septic tank. NA_WatsonC-20

I am in favor of opening up older historic trails in Warner Valley, including the Grand Stair Case, the high trail above Devils Kitchen and the Ice Cream Trail, which is located on the south side of Hot Springs Creek. This later trail has concrete and steel culverts at a few stream crossings and is a wonderful trail. NA_WatsonC-21

Drakesbad Guest Ranch

The concessionaire housing is currently inappropriate for the needs of the facility. I fully agree that something must be done, not only for the long term, but the short term as well. The current buildings are in disrepair and thoroughly inadequate. However, I am not in favor of the suggestions that were presented, and further work needs to be done to answer this problem. Clearly, I am not in favor of a cook apartment, and staff can take showers at the pool house where they have been doing so forever. I think the NPS should allow the concessionaire to temporarily bring the trailers back in to ease the current over crowding situation. NA_WatsonC-22

I think a hybrid power system would be a good idea; however, the NPS has spent considerable amount of money on the upgrades for the current system. I think the loop road and new employee parking spaces concept is not needed, thereby saving the trees. NA_WatsonC-23

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

The "boneyard" site currently looks like a boneyard. I think this area could be restored, the propane tank either moved or painted with approved NPS colors. I suggest that the Waste Management Services advertisement plaque from the horse manure dumpster be removed. NA_WatsonC-23 cont.

With all the new buildings proposed, I am wondering why is another one needed for storage and delivery? I think this is not a good idea. NA_WatsonC-24

I fully agree with the renovations of the bathhouse as Alternative 2, except for the replacement of the coping and deck. I think the solar upgrades in Alternative 3 would be a good addition. NA_WatsonC-25

The NPS likes to have designated areas for parking to control the degradation of surrounding lands. While I think that is a good idea, if too much control is imposed for parking and access, I believe that much of the Drakesbad casual nature ("*Drakesbad Experience*") will be lost. Perhaps some areas could use some good boundaries, and I would like to see another alternative that proposes less stringent controls. I think areas outside of the designated parking areas should be restored. NA_WatsonC-26

I do not favor closing the Mission 66 loop! NA_WatsonC-27

The access road to the water tank has been a bone of contention since it was discovered to be a main cause of the degradation of the Drakesbad Meadow. I recommend that you outsource this project to a qualified licensed geotechnical engineer or civil engineer. Professional engineers are well versed in providing applications just like this, and I encourage the NPS to outsource this important project. NA_WatsonC-28

The access road to the bathhouse is built on a topographic high that is not impacted sheet flow or floodwaters from moving across the valley. Therefore, there is no need for Alternative 3 and the raised boardwalk. As per the Alternative 2 in scaling back the road, I suspect that would be fine, but there is no need to replace the rock or add grass cell pavers. What would be nice is if the path were lined with cobbles, like the former historic footpath. NA_WatsonC-29

The trail across the meadow from the corral (affectionately called, the "*causeway*") has been an abomination since its construction in the late 1990s. It obstructs the natural flow of water across the meadow during spring runoff and would surely enhance erosion from any large-scale floods. I strongly support the construction of an elevated wooden boardwalk across the soggiest areas that give way to a natural dirt path in the non-wet areas. Obviously this would have to be researched carefully. I am not sure the boardwalk needs to be eight feet wide. Two-way traffic is not required; people can move off the path just as they do for horses on other trails around the Park. Restoration of the former causeway will be necessary. NA_WatsonC-30

I am in favor of Alternative 2 for the corral and the dining hall service area. NA_WatsonC-31

I am not in favor of moving the volleyball court, nor resurfacing the outdoor dining area. I think the rebuilding of the stonewalls around the cabins is a waste of money. NA_WatsonC-32

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

Facility Maintenance

So much of Drakesbad is in disrepair. Upon a tour in September 2009, my list of items needing maintenance was two pages long. It seems only wise that general maintenance needs to be incorporated into the management plan. There must be a streamlined system that can allow for general maintenance to occur, that our cultural resources are not allowed to degrade. NA_WatsonC-33

Sincerely,

Charles P. Watson, Chief Geologist
California Professional Geologist #7818

Advanced Geologic Exploration, Inc.
PO Box 1956 • Chester • CA • 96020 • Voice: (530) 258-4228 • Fax (530) 258-4339 • www.advancedgeologic.com

Comment Letter NA_Charles Watson

NA_WatsonC-1

The comment states that it is incorrect to refer to the soils in Drakesbad Meadow as fen soils and that the EIS is flawed because it makes recommendations for fen restoration without having completed appropriate professional studies. The comment asserts that although there may be fen soils in Drakesbad Meadow and the meadow may even be a unique type of "western mountain fen", as proposed by the comment author in 2003, not enough work has been done to say one way or the other. The comment also contends that one of the source documents used for the EIS (Patterson, 2005)[1] was not peered reviewed by experts in soil science.

The hydrology and soils strongly suggest a unique fen wet-meadow complex exists at Drakesbad Meadow and although there may not be full agreement among experts as to the precise classification of the thick, organic soils (peat) present in the meadow, it remains indisputable that historic hydrologic manipulation degraded the meadow and that the restoration efforts proposed under the project to restore the natural hydrology is beneficial to the resource. The assumption that Drakesbad Meadow is a sensitive fen-like ecosystem provides the most conservative level of restoration.

It appears from this comment that the author disagrees with the classification of soils in Drakesbad Meadow primarily because the Patterson report did not consider clay content and chroma (purity of color) of the soils per the National Technical Committee for Hydric Soils (NTCHS). A study completed by the comment author (AGE, 2004)[2] classified all of the soils studied within the Middle Drakesbad Meadow as organic mineral-rich or mineral rich soils; though the study found no indications of fen soils. However, the comment author concurs with Patterson that sufficient organic content was present in the soils to qualify them as soils characteristics of peatland soils. In addition, as stated in the comment, AGE proposed that there may be fen soils in the meadow and there may even be a unique type of "western mountain fen". In Fall of 2009, the Natural Resource Conservation Service (NRCS) conducted soil mapping as part of the National Cooperative Soil Survey in Lassen Volcanic National Park.[3] The results of the NRCS soil survey classified soils in Drakesbad Meadow as Aquandic Humaquepts-Histic Humaquepts-Aquandic Endoaquepts-Terric Haplohemists complex, 1 to 5 percent slopes (Map Unit 165). In general, this soil complex is relatively flat-lying and contains poorly drained to very poorly drained peat and muck overlying silt and sandy loam. This recent NRCS soil classification, especially the identification of Terric Haplohemists soils, which are associated with fens on stream terraces, further verifies the presence of hydric soils in Drakesbad Meadow and supports the existence of a complex fen-like wet meadow ecosystem.

Regardless of the subtle differences between experts as to the precise soil characterization, the hydrology of Drakesbad Meadow adequately defines what can be considered a fen wet-meadow environment. Unlike bogs that receive water primarily from precipitation, fens can develop in areas where groundwater becomes surface water. Drakesbad Meadow appears to be supported by

---

1 Patterson, Lindsey S., 2005. *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California*, Graduate Thesis in Ecology.

2 Advanced Geological Exploration, Inc, (AGE), 2004. *Phase II Soils and Tephra Sampling, Geologic Research Project, Drakesbad Meadow, Lassen Volcanic National Park*. Prepared for the National Park Service, Lassen Volcanic National Park, Mineral California, 24 March.

3 Recent (February 2010) soil mapping data for Lassen Volcanic National Park is available on the NRCS Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/).

perennial groundwater discharge originating from a spring complex on the south side of Flatiron Ridge. Historical year round groundwater flow to Drakesbad Meadow provided the saturated soil conditions that impede the decomposition of organic matter and result in the formation of the thick, organic peat soils.

The 2004 AGE study and the 2005 Patterson study provides a sufficient level of scientific investigation and adequate evidence to support the restoration actions proposed by the NPS. It has been confirmed through studies that Drakesbad Meadow is a unique mountain wet-meadow ecosystem and that past human manipulation has altered its original hydrologic function. Proposed actions would advance efforts to restore this meadow ecosystem to its original hydrologic function. Additional "professional" study of the Drakesbad Meadow or further classification of soils, as called for in the comment, could possibly provide a more accurate delineation of certain soil types but it is unlikely that further study would change the underlying conclusions of previous studies. Furthermore, it should be noted that the permanent restoration strategy of Drakesbad Meadow would require additional study to refine the final design and outline details of the approach to the restoration activities.

The comment states that the Patterson (2005) study was not peer reviewed by experts in soil science. Patterson (2005) was technically peer-reviewed by the NPS and was provided to ESA (preparers of the EIS) as a technical resource. The report prepared by AGE (2004) was also peer reviewed by the NPS and provided to ESA. ESA's in-house California Registered professional geologist reviewed the reports for technical adequacy and determined that they were appropriate to support the analysis in the EIS. Contrary to the claim by the comment author, the Patterson study (2005) did receive technical peer review as it was published by the Society of Wetland Scientists in the June 2007 issue of WETLANDS (Volume 27, No.2).

NA_WatsonC-2

The comment asserts that investigators involved with the restoration of Drakesbad Meadow must comply with professional licensing standards required by the State of California and have a registered professional geologist, a geotechnical engineer or a civil engineer certify any study that would be incorporated into any plan that would "significantly affect the quality of the human environment". The comment claims that all of the proposed projects in the EIS regarding the Drakesbad Meadow have not been in compliance with these laws and recommends that 1) the Patterson (2005) Masters Thesis be peer reviewed, 2) Professional investigations of the resources be conducted as per NEPA requirements, and 3) that new recommendations be assembled to preserve or enhance the resource.

The NPS would retain appropriately qualified and registered professionals to assist, when needed, in the planning and implementation of actions proposed in the EIS, including those restoration activities proposed for Drakesbad Meadow. Prior to restoration activities, final restoration plans for Drakesbad Meadow would be reviewed by a professional engineer registered in California as well as other technical experts, if required. Contrary to the claim in the comment, the NPS has been in compliance with laws requiring certification by registered professionals. To date, the restoration plans for Drakesbad Meadow have been conceptual and are not in the final design phase; the NPS are aware that additional study would be required for final design. In response to the review of Patterson (2005), as mentioned above, this study was technically peer reviewed by the Society of Wetland Scientists upon publication in the June 2007 issue of WETLANDS. As far as assembling new recommendations for preserving or enhancing the resource, additional study would refine and develop final designs for the restoration strategies previously recommended in the EIS. As

discussed above in Comment NA_WatsonC-1, although there may not be full agreement among experts as to the precise classification of the organic soils (peat) present in the meadow, it remains true that historic hydrologic manipulation degraded the meadow and the restoration efforts proposed under the project would take necessary steps to restore the meadow's natural hydrology.

NA_WatsonC-3

The comment questions the restoration approach to mitigate the effects of ditches in Drakesbad Meadow and appears skeptical that these measures would be adequate given that they were only tried for one season with positive results. The comment states that there has not been an official study of soil degradation and what is a ditch and what is a natural channel.

The measures to mitigate the degradation in Drakesbad Meadow are conceptual approaches provided as recommendations in Patterson (2005). Implementation of these strategies—whether it would require filling ditches for permanent restoration (preferred alternative) or placing metal sheets to block water flow—would be studied further prior to final implementation. As noted in the project description, "to complete the restoration of the Drakesbad Meadow fen-complex, all structures that divert either groundwater or surface water flowpaths, including roads, ditches and impoundments should be analyzed." Studies required under the proposed action would adequately assess the details of the restoration action. In addition, actions taken by NPS staff will be monitored over time against specific measures of success that will be established in final plans. Actions could be altered (adaptive management) if refinement to the restoration plan is deemed necessary.

NA_WatsonC-4

The comment states that there is a clear lack of understanding as to the difference between a ditch and a natural channel on Drakesbad Meadow. The commenter urges that a study be performed prior to implementation or restoration to identify the ditches and the channels.

Please refer to the response to comment NA_WatsonC-3. Prior to implementation of the Drakesbad Meadow restoration plans, as discussed in the EIS, the NPS would conduct further study of the meadow surface hydrology and refine of the restoration strategy based on the findings.

NA_WatsonC-5

The comment states that the plan to restore Drakesbad Meadow by filling in ditches was not well conceived and lists several questions regarding the details if the project.

Please refer to response to NA_WatsonC-3 and C-4. Refinement of the restoration approach and final design of the ditch filling would consider the details of the project, which, at the EIS stage, is conceptual based on the recommendation from Patterson (2005). The restoration would be completed in accordance with applicable water quality regulations and state and federal permits, as they apply.

NA_WatsonC-6

The commenter states that small burrowing mammals should be studied further to better understand their role in the meadow's ecology. The National Environmental Policy Act requires an EIS to evaluate all potential impacts and benefits of a project. This Environmental Impact Statement was written based on the expected impacts of the proposed project. Gophers are generally considered beneficial in the natural environment. Through their tunnel building, they

disrupt soil layering, aerate the soil and cycle nutrients. Gophers can also drastically affect the local plant community destroying vegetation by burying it and through root herbivory. The proposed meadow restoration would include elements of adaptive management that will monitor the success of restoration efforts based on ecological markers or criteria for success. Ongoing monitoring of restoration efforts will take into account the affect of burrowing mammals on restoration progress.

NA_WatsonC-7

The comment states that the EIS does not have a clear understanding of the geology in the upper Warner Valley.

The description of the geology in the Warner Valley area is correct and adequate for the purposes of the EIS. Sources for the geologic description were obtained through published NPS literature, previous descriptions of geology for Lassen Volcanic Park provided in the Management Plan, and the Geologic Map of Lassen Volcanic National Park.[4]

NA_WatsonC-8

The comment discusses geology and local faults such as the Terminal Geysers-Boiling Springs Lake Fault System and the broader Stover Mountain Fault System, which has a number of strands and splays. The comment recommends that a Probably Ground Acceleration study be initiated. Note that it is assumed the commenter meant to discuss Peak Ground Acceleration (PGA) because to our knowledge, there is no such seismic parameter as the “Probably Ground Acceleration” as mentioned in the comment.

The comment provides no new information that would alter the analysis of seismicity in the EIS. The PGA of 0.22g is consistent with potential ground motion in this region of California and although the understanding of seismic sources and forces can change with new information, there is no need to revise seismic analysis for the project or the estimate of PGA. The source of the seismicity data included a site-specific seismic assessment performed by WJE Associates[5] and the California Geological Survey. While the EIS does not say an earthquake would not occur, it does state that the site is not likely to experience severe ground motions during an earthquake in this region.

NA_WatsonC-9

The comment states that rockfalls are a potential geologic hazard especially considering the large rocks east of Drakesbad Meadow and north of the Visitor Parking area. The commenter states that he doubts this area would be suitable for development because of these geologic hazards; however, if this site is still preferred, it would be advisable to have it investigated by a qualified engineering geologist. The comment recommends an earthquake and volcanic hazard safety plan be developed for Drakesbad.

The NPS considers geologic hazards in placing visitor and employee facilities while realizing that it must preserve these processes to the extent practicable and hazards such as volcanic eruptions, thermal outbursts, landslides, liquefaction and floods were certainly considered in the EIS

---

4 Clynne, M.A. and L.J.P. Muffler, Geologic map of Lassen Volcanic National Park and vicinity, California: U.S. Geological Survey Scientific Investigations Map I-2899, scale 1:50,000 (pending publication)

5 Wiss, Janney, Elstner, Associates (WJE), 2003. *Drakesbad Guest House, Seismic/Structural Evaluation, Lassen National Park, California.* Prepared for the National Park Service, Denver Colorado, 19 February.

analysis. However, if the analysis did not indicate that these hazards posed a new threat brought on by the proposed action, it was not discussed in the EIS.

The 2006 National Park Service Management Guidelines, (text provided below) address siting, construction of facilities in areas considered geologically hazardous. Through the existing management guidelines, the NPS would adequately review placement of facilities in areas that may be susceptible to geologic hazards such as rockfall.

> **NPS Management Guidelines Section 4.8.1.3 – Geologic Hazards**
> "Naturally occurring geologic processes, which the Park Service is charged to preserve unimpaired, can be hazardous to humans and park infrastructure. These include earthquakes, volcanic eruptions, mudflows, landslides, floods, shoreline processes, tsunamis, and avalanches. The Service will work closely with specialists at the U.S. Geological Survey and elsewhere, and with local, state, tribal, and federal disaster management officials, to devise effective geologic hazard identification and management strategies. Although the magnitude and timing of future geologic hazards are difficult to forecast, park managers will strive to understand future hazards and, once the hazards are understood, minimize their potential impact on visitors, staff, and developed areas. Before interfering with natural processes that are potentially hazardous, superintendents will consider other alternatives. The Service will try to avoid placing new visitor and other facilities in geologically hazardous areas. Superintendents will examine the feasibility of phasing out, relocating, or providing alternative facilities for park developments subject to hazardous processes, consistent with other sections of these *Management Policies*."
>
> **NPS Management Guidelines 9.1.1.5 Siting Facilities to Avoid Natural Hazards**
> "The Service will strive to site facilities where they will not be damaged or destroyed by natural physical processes. Natural hazard areas include sites with unstable soils and geologic conditions, fault zones, thermal areas, floodplains, flash-flood zones, fire-prone vegetation, and coastal high-hazard areas. Park development that is damaged or destroyed by a hazardous or catastrophic natural event will be thoroughly evaluated for relocation or replacement by new construction at a different location. If a decision is made to relocate or replace a severely damaged or destroyed facility, it will be placed, if practicable, in an area that is believed to be free from natural hazards. In areas where dynamic natural processes cannot be avoided, such as seashores, developed facilities should be sustainably designed (e.g., removable in advance of hazardous storms or other conditions). When it has been determined that facilities must be located in such areas, their design and siting will be based on:
>
> - a thorough understanding of the nature of the physical processes; and
> - avoiding or mitigating (1) the risks to human life and property, and (2) the effect of the facility on natural physical processes and the ecosystem."

NA_WatsonC-10

The commenter expresses concern that the basis for the surface and subsurface hydrology for the Drakesbad Meadow is drawn from the Patterson (2005) report. This concern is based on the assumption that the report has not been peer reviewed, and that the commenter has witnessed the installation and some of the monitoring of the piezometers that were used in the analysis. The commenter states that several errors were made, including not providing seals, which immediately discounted the possibility of perched groundwater or hydrostatic pressures.

Please refer to NA_WatsonC-2 and C-3 regarding the peer review of Patterson (2005). In response to the issue of the installation and monitoring of piezometers, without details, it is

difficult to assess whether there were actual errors made and whether these errors negatively impacted the data. Based on the review of the data by the NPS and the EIS consultant, the data appeared reasonable given the scope of the study. It should also be noted that the comment author's 2004 study (AGE, 2004) was also used as a source for the technical analysis in the EIS. Based on both studies, the EIS was able to conclude that the restoration strategy developed by Patterson (2005) would be a reasonable approach to restore the health of Drakesbad Meadow.

NA_WatsonC-11

The comment states that a number of geothermal manifestations contribute to the water of Hot Springs Creek and geothermal fluids are known to contain high levels of mercury and arsenic, as well as other potentially hazardous elements. The commenter states that this has not been well studied by the NPS and could play an important role in a future management plan.

Comment noted. Geothermal fluids have not been highlighted as a concern for the proposed actions of the management plan as the uses of water in Hot Springs Creek would not change and there is no proposed action that would additionally expose the public to water in Hot Springs Creek.

NA_WatsonC-12

The commenter recommends that a study be conducted prior to any projects involving the Dream Lake Dam. In advance of this EIS, the NPS contracted a geotechnical investigation and water quality analysis conducted by Kennedy/Jenks Consultants, Balance Hydrologics, and Ltd. Engineering. The resulting technical report is called, Final Title I Schematic Design Report, May 2007. Recommendations from this report have guided the alternatives proposed for the Dream Lake Dam.

The comment also states that if left to its own course, Dream Lake would naturally fill in over time and become a tarn. The commenter inquires about the current ecology of Dream Lake and recommends that a study be conducted prior to any projects involving the dam. The comment also touches on the need for restoration at the borrow pit where that was used to supply the dam material.

The comment regarding the eventual conversion of Dream Lake to a tarn is noted, and it is acknowledged that this could be a consequence of the No Action Alternative, however it is more likely given that small failures in the dam would occur over time (as described in the EIS description of Alternative 1 impacts) and while these are not dangerous to human health, they are not beneficial to the overall ecosystem.

The EIS provides adequate environmental setting information for Dream Lake to the extent that the environmental consequences can be properly analyzed. Additional specific studies of the dam and lake would be conducted, if necessary, to aid in the implementation of the preferred action (removal or new dam construction) once the project is approved. Other than that, no additional study of the dam is proposed. In response to the comments regarding the borrow pits; the proposed action proposes to restore the borrow pit by removing trees, backfilling with excavated dam material, and re-grading. Please refer to page 2-39 and 2-40 of the FEIS.

NA_WatsonC-13

The comment states that, although not addressed in the EIS, the historic garbage dumps should be attended to in this management plan.

Comment noted. The investigation and clean up of historic garbage dumps is not addressed as part of this management plan. Please see the response to comment S_RWQCB-2.

NA_WatsonC-14

The commenter suggests that a licensed engineer or geotechnical engineer review the Warner Valley Road Erosion Control Plan. The Regional Water Quality Control Board has reviewed this EIS and provided comments (See S-RWQCB comments and responses).

The commenter stated that he was pleased to see that erosion control measures would finally be established on Warner Valley Road, including cross culverts and drainage gutters. The runoff from along side the road is substantial during the spring snowmelt and during heavy thunderstorms. The commenter suggests that a licensed engineer or geotechnical engineer review the plan and that the California Regional Water Quality Control Board be advised of the activities, the latter of which may require a Storm Water Pollution Prevention Plan with annual Best Management Practices (BMPs) maintained.

During the final design and permitting phase of this project, necessary BMPs to reduce erosion and concentrated runoff would be outlined and presented in a SWPPP document. The NPS will follow all state and federal laws and permitting requirements based on the size of the project being implemented.

NA_WatsonC-15

Comment Noted.

NA_WatsonC-16

The commenter states that moving the fee station to the proposed location or providing a new access road to the Ranger Station water tank is acceptable but asks for further detail as to the location of the proposed headwalls.

The specific location of the proposed headwalls is not presented in the EIS because further engineering design is required to finalize the proposed action. The final engineering phase would determine location, configuration, and placement schedule of the headwalls. The NPS has been replacing and building stone headwalls on all park roads and along the Warner Valley Road for many years as part of the annual and cyclic maintenance program. Per NEPA these actions are a replacement in kind action; the NPS is known for its expertise to perform quality masonry work.

NA_WatsonC-17

The comment states that there are a number of grand view-sheds along the road that could enhance the visitor experience and that pullouts with footpaths to the views could be a low-cost addition. Comment noted.

NA_WatsonC-18

Comment noted. Please see response NA_Keller-9 for further information.

NA_WatsonC-19

Comment noted.

NA_WatsonC-20

Comment noted.

NA_WatsonC-21

Comment noted.

NA_WatsonC-22

Comment noted.

NA_WatsonC-23

Comment noted.

NA_WatsonC-24

The commenter asks why another building is needed for storage and delivery. Under Alternatives 2 and 3 the existing storage and delivery will be relocated out of the historic district and into the new service center.

NA_WatsonC-25

Comment noted.

NA_WatsonC-26

The commenter would like to see another alternative that proposes less stringent controls for designating parking areas and is concerned that this would detract from the "Drakesbad Experience." The intent behind the parking space definition under Alternatives 2 and 3 is to prevent the adverse impact of parking creep into natural areas, which could damage these areas and also detract from the visitor's experience. In addition, the rock barriers proposed for parking space definition were recommended in the Cultural Landscape Report for Drakesbad Guest Ranch in an effort to maintain the informal character of the existing spaces. Text concerning this issue was added to page 2-56, under Section 2.3 of the FEIS.

NA_WatsonC-27

The commenter does not favor closing the Mission 66 loop. Comment noted.

NA_WatsonC-28

The commenter recommends outsourcing the water tank access road project to a qualified licensed geotechnical engineer. The NPS will continue its practice of using qualified professionals for all of its projects.

NA_WatsonC-29

The commenter does not support the use of raised boardwalk as an access road to the bathhouse as depicted in Alternative 3 but recommends lining the path with cobbles. Comment noted.

NA_WatsonC-30

The commenter supports the construction of a boardwalk to replace the trail across the meadow as described in Alternative 2. The NPS notes the commenter's additional recommendations of a narrower width and causeway restoration.

NA_WatsonC-31

Comment noted.

NA_WatsonC-32

The commenter is not in favor of moving the volleyball court. Comment noted. Please see the response to A_WFEN-3.

NA_WatsonC-33

Commenter would like to see general maintenance of Drakesbad Guest Ranch added to the management plan. The comment is noted, however, this issue is beyond the scope of the proposed plan; it is a requirement of the concession contract.

COMMENTS ON
THE WARNER VALLEY COMPREHENSIVE SITE PLAN DRAFT
ENVIRONMENTAL IMPACT STATEMENT, AUGUST 2009

To: Planning Team at LAVO_planning@nps.gov
From: Susan Watson
36 Ardor Drive, Orinda, CA 94563mailto:sjwatson@att.net

Thank you for the opportunity to review the "Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement (DEIS).

I have read the draft carefully, and I toured the sites mentioned in the text on September 14, 2009. In addition, I have been in the Drakesbad Meadow several times in the past with scientific groups and persons. As a guest at Drakesbad since early childhood, I am familiar with the history of the area, both in the period of historical significance and in the post-Sifford period to the present day. In the summer of 1945, I worked as a waitress in the dining room at Drakesbad under Pearl Sifford's direction.

The presentation of subjects in the DEIS is well organized and readily available for understanding, especially in the tables of alternatives. The graphics are illustrative of the topics, and the GPS-driven maps are excellent for showing real geographic relationships. However, in spite of the excellent presentation, I cannot regard the DEIS as adequate, and in several respects it is faulty in that there is not a solid scientific base.

1 - There is an inadequate scientific base for understanding the Drakesbad Meadow.
2 - There are confusions of terms, contradictions within the plans, and within the scientific bases cited.
3 - There are contradictions in the cultural/natural resource resolutions.
4 - There is a lack of adequate research, or understanding, into several important natural and cultural issues.
5 - There are technical and economic infeasibility issues with many of the plans presented.
6 - There are omissions of items that have an effect on use or interpretation.

NA_WatsonS-1

To elaborate on these six areas:

I - **The Drakesbad Meadow Science**

The plans for the meadow are almost entirely based upon a masters thesis (Patterson, L., 2005, *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California.* Graduate Thesis.) To my knowledge, this work has never been independently reviewed by professionals in the field aside from the candidate's own committee. Ms. Patterson was an earnest and dedicated researcher working toward the completion of her degree, but she was a relative novice in hydrology and related subjects. If the meadow is "the largest meadow in the

NA_WatsonS-2

park" (3.2-1) and "one of the largest known fens in the western United States" (1.1), these features deserve the most accurate understanding possible of its natural history and functioning. There should have been competent and independent review of the thesis by experts in the field, especially by the National Technical Committee for Hydric Soils, a division of the Natural Resources Conservation Service under the US Department of Agriculture. This committee is the federal body established to determine the definition of soils and to advise on them in the United States. This does not mean necessarily that the thesis is incorrect in its assumptions and recommendations, but it does mean that it has not been independently assured that it is correct. Too many plans in the DEIS depend upon descriptions of the functioning of the meadow to allow for anything less than an assurance of the accuracy of those assumptions. **Proper independent expert review should be done on the all scientific papers regarding the Drakesbad Meadow**.

NA_WatsonS-2 cont.

II - **Confusions and Contradictions**

Within the DEIS there is a confusion of terms regarding designations of the Drakesbad Meadow, a conflict with the basis for designation, and a lack of reference to an authoritative classification system. Also, there are unresolved contradictions between two cited descriptions of the meadow. Native and non-native species have not been distinguished for management. The terminology should be consistent, and the contradictions need to be resolved.

NA_WatsonS-3

A - Within The Major Cited Scientific Source
There seems to be no distinction between the generic "meadow fen complex" as the entire middle meadow and the term "fen" as a specific soil. There seems to be a confusion between the two in the use of it as a particular (e.g., 1.5, 2-6, 2.23, 2.55, 3.2-2, 4.57, etc.) and as a generic term for wetlands (e.g., 2-21, 2-35, 2.38, 3.2, 4.2-3, 4.3-10 etc.). The DEIS appears to come down on the side of the use of a generic term when, in section 1.1, Background, it states "The center of Warner Valley features a large meadow (Drakesbad Meadow) that is one of the largest known fens in the western United States." There is a conflict, however, between the basis of the DEIS and the cited reference, the Patterson thesis of 2005, which features on page 27 of the thesis a graphic delineating areas in the middle meadow that have peat soils of 40+ cm in depth. One of the many requirements of a fen soil classification is that the soil in question has that depth. The delineated areas are 3 in number and are relatively small in size. The Patterson paper itself appears to blur the difference between the generic use of the term and the specific meaning of the classification. The definition of a fen in the glossary of the DEIS, (5-4), is "A type of wetland that is fed through surface water or groundwater with areas of peat soils or saturated conditions." This definition is no help at all in acknowledging any defined and scientifically accepted classification system of soils. **Any classification system used should be identified in detail along with its authority in order for any plans to be valid.**

NA_WatsonS-4

B - Between Two Cited Scientific Sources
The paragraph under the heading "Local Geology" in Chapter III, Affected Environment, (3.1-1), uses again the sentence from the Introductory 1.1, "The center of

NA_WatsonS-5

the Warner Valley features a large meadow that is one of the largest known fens in the western United States," citing Patterson. However, the succeeding paragraph "Soils" citing another scientific source, Advanced Geologic Explorations, Inc., 2004, states "In the Warner Valley area, the middle Drakesbad Meadow consists of a complex relationship between organic-rich soils on an alluvial fan and mineral soils on an active floodplain where the flood scour and fill processes dominate."…"Organic-rich soils are located across the northern half of the middle Drakesbad Meadow. The organic soils are predominately peat loams to mucky loams." On examination, one is forced to admit that these are not the same interpretations. **The DEIS contains these contradictions without noting their discrepancies.** NA_WatsonS-5 cont.

C - Between and Among Treatments of Species

1- All the Drakesbad meadows have many rodent species (3.3-5), and they have probably occupied the meadows since conditions after glaciations allowed them to do so. It is presumed by the DEIS that all the middle meadow, at least, was very wet and thereby excluded rodent life, especially mountain pocket gophers "and their destructive tunnels" (2.53). Rodent populations come and go in size, responding to many variables There is a possibility that settlers brought in some rodents in hay, but they did not bring in the mountain pocket gopher and their "destructive tunnels", which have been active throughout the meadow for several thousand years. **There is no definition of why the tunnels are "destructive", and, as the pocket gopher has been an integral part of the meadow over a great deal of time, there should be research on what role it plays in the ecology of the meadow.** NA_WatsonS-6

2 - Not native to the Warner Valley – or to the Almanor basin - is another rodent, the beaver, although the Shasta beaver subspecies (Castor canadensis shastensis) is a natural visitor to Hat Lake at the north of the Park. (Grinnell, Joseph, *Mammals of California,* UC Press 1937, pp 635 *et* seq; Fellers, Gary M., *Technical Report No 3,* April 1982; Beier, Paul, 1998, *Assessment of Beaver (Castor Candensis) Habitat in Lassen Volcanic National Park.*) Introductions of various species to the Almanor basin were made by the California Department of Fish and Game in, roughly, the second quarter of the 20th century. That beavers were not in the Warner Valley, nor at the Lee place farther down the Warner Valley from the boundary of the Park, is noted by photographs of cottonwoods and aspen that used to line much of Hot Springs Creek (Roy Sifford, *Sixty Years Siffords Drakesbad*, Vol..2, pp. 92A, 101, 101A). No remnant fossil beaver dams have ever been found in the length of Hot Springs Creek, and the cottonwoods taken down by beavers preceded in age any possible trapping of beavers by hunters of European origin. Beavers have caused great damage to the native deciduous trees in the 50+ years that they have been in the area and have altered the creek in many places. The management of this historically foreign species as native (3.3-6) in the sense of not disturbing it while lamenting the proclivities of the native mountain pocket gopher is a conflicting situation. Elimination of beavers from the Warner Valley is probably impossible at this late date; however, as Storer and Usinger suggest in the higher elevations (of the Sierra Nevada) where beaver have been transplanted, it is questionable that the supply of aspen will allow them to continue to survive indefinitely (*Sierra Nevada Natural History*, UC Press, 1966, p 340). **Beaver should be managed when** NA_WatsonS-7

they are destructive to ecologically sensitive areas and to culturally designated areas, i.e., the Drakesbad Meadow area and Dream Lake. NA_WatsonS-7 cont.

III - **Contradictions in the Cultural/Natural Resource Resolution**

Let me state right off that I am familiar with the dual role of the National Park Service in its establishing legislation for preserving the natural environment and providing "pleasuring grounds" for the people. I commend the planning team for recognizing equally the status of Drakesbad's listing on the National Register of Historic Places and the importance of the natural environment in the Warner Valley. However, in the DEIS the resolutions are mixed in focus.

A- Natural Hydrology and Viewsheds

1- The meadow (the middle meadow is the paramount interest in the planning) is described (3.3-3, 3.9-3) as having been altered by the settlers by being drained by ditches "to de-water portions of the meadow in the early 1900s" and by early construction of the pool and pool house and trails across the meadow. It was altered again (3.3-3) by the National Park Service with a cobble-fill horse trail across the meadow, the road-base road to the pool, and the construction and later "improvements" to the water tank access road that disturbed the natural pattern of flows to the middle meadow. Not mentioned in the DEIS, but pertinent, are the construction of the former pump house and the sewage system across the lower (east) meadow, which have obliterated the natural contours of that area, and lines and a hydrant for the domestic water supply in the meadow near the corral. The plan proposes to restore the natural hydrology of the (middle) meadow and thereby restore the wide, well-watered, grassy "natural" scene. With the use of culverts on the water tank access road and the use of metal baffles in water channels in the meadow, the cultural and historic character of the meadow is re-established (3.9-1). **The problem is that the historic scene is re-established, but it is not the natural (pre-settler) scene. There is no acknowledgment in the DEIS of what is trying to be restored.** NA_WatsonS-8

.

2 - The curious confluence of the cultural (Sifford era) scene (4.5-6) and the presumed natural hydrology of the meadow is a resolution of the conflict, but there is that no determination of how the meadow operated before the second half of the 19th century. There are a lot of assumptions, but no hard evidence. Non-native vegetation was not primarily from imported horse feed in the corral (2.23) but from the sowing of timothy and other grasses by the Siffords, a common practice in the early 20th century (Roy Sifford, *Sixty years Siffords Drakesbad*, Vol. 2, p110A). The question arises if grasses needed to be sown and then irrigated, what was the natural condition of the meadow – or large parts of the meadow - prior to that time? From early photographs and historical writing the meadow was "full of willows" (mainly alders) and "bog holes full of mosquitoes", and yet was dry enough for the Sifford family to drive a team across the meadow in early June 1900 through what is now described as part of the fen (*op. cit.* Vol. 1, pp 4, 18A, 19A; Vol. 2, p 90) "Restoration", then, is a term and not a historic condition. The vast improvement of directional water flow down the slope from the elevated springs to the meadow from the experimental culverts of the water tank access

road have re-watered those northern portions of the middle meadow that had been dried out from the road's water diversions, but it is only making the meadow look like the one the Siffords made and not necessarily the natural condition of it. There is a contradiction here between the idea of the cultural resource and the presumed restoration of the original natural condition. **More study is needed to ascertain what the pre-historic natural condition of the meadow was and what its natural functioning entailed. It would also help to determine a resolution in the tension between the natural and the cultural claims.** NA_WatsonS-8 cont.

B- Volleyball Courts and Viewsheds

The three critical and historic viewsheds identified by the 2005 Cultural Landscape Report (3.9-1) illustrate the conflict between natural resource and cultural preservation. The viewshed from the trail crossing the meadow west to the upper meadow was probably originally screened by areas of alders and willows and even lodgepole pines at varying times. A line of alders screened to some extent the view of Mount Harkness from the eastern meadow (the Park is in possession of an old movie film, taken at the end of the 1940s illustrating this scene). Most of the alders are gone by human removal, so the views are not natural but are considered desirable from a 21th century historic perspective. The lodgepole pines that were growing in the disturbed and raised earth by the former pump house were taken out about 1996. My point is not that these actions were bad, although they did not reflect the natural order of things, but that the cultural and historic choice has been regarded as a more acceptable version of the valley at this time. The plan argues that the current recreation in front of the lodge, the non-historic volleyball court, obstructs the view of Mount Harkness and the sweep of the meadow (2-22). I took photographs from the porch at the lodge and from one of the benches by the fire ring on September 14, 2009. They illustrate that this is not true. That the volleyball court is recent is true and that it occupies a portion of the meadow is true, although the meadow there is very dry, and no watercourse or drainage is affected. Before the volleyball court, there was the historic horseshoe plot in the same place. We – shockingly – used the meadow historically for a croquet court, softball games, tag games, running games. The meadow was always used culturally for types of recreation. The meadow has shown itself to be highly resilient in many aspects to this type of activity. The horseshoe games are now located in a portion of the former road to the lodge (and are probably safer for bystanders in that spot than in front of the lodge), but it is not a social area. The gathering place for conversations and for play is now the volleyball court, which is used by toddlers to teenagers and well beyond. Strictly speaking, this may be construed to be an active pursuit instead of the passive one of viewing, but historically it is in the tradition of Drakesbad, and it replaced a former recreation that served the same social purposes. We no longer mow a portion of the meadow for a croquet court (although those games were indeed great fun), but we should not balk over a gathering spot that fulfills a historic role. **Like the choice of rooting out alders and willows and lodgepole pines in the meadow and agreeing with that choice in the DEIS, in this case, it is a cultural choice that succeeds the natural one. Keeping the volleyball court where it is now is a choice consistent with this philosophy.** NA_WatsonS-9

C- Other Cultural/Natural Interfaces

1 - The Horse Trail and the Swimming Pool Path Across the Meadow

a - Both of these crossings were constructed in the mid to late 1990s and so are relatively new. They are considerably damaging to the meadow. The Horse Trail is not compacted gravel as stated by the DEIS (2.20-2.21) but is constructed of river rounded cobbles, each about 5 to 15 inches in diameter. The "gravel" appears to be a natural erosion of the rock. The cobbles were supposed to allow the flow of water through them, but the plan was faulty in that grasses and silt filled the cavities, so that now the structure is more like a dam. Water is ponding in several places against the west side of the structure in early season. **However, before design work is done for remedying this situation, the hydrology of the meadow should be studied in order to know what should be done in the least damaging way to the meadow by this crossing**. NA_WatsonS-10

b - The swimming pool "path" is efficient for supply vehicles but is a travesty to what existed before that – both the small road and, earlier, a real footpath, one that was lined with rock, some of which still exist in places. **Although the road base does not affect water flow (the meadow is raised and dry here), replacement plans should await the determination of the hydrology of the meadow. The necessity of access of the bathhouse by small service vehicles and a turn around space should be included in the planning**. NA_WatsonS-11

2 - Other Trails

a - **The DEIS mentions several historic trails that may be considered for reopening, preservation, and maintenance (2.21).** They are the Head of the Valley Trail, Kitchen Trail (which has been known for most of historic time as the "Golden Staircase"), the High Trail above Devils Kitchen, and the South Trail along Hot Springs Creek to the park border. The Golden Staircase should be reopened, as hikers, including backpackers, use it regularly. Allowing the trail to be degraded to discourage use has not worked – the trail is used just as much with more danger to the hikers. It should be a secondary trail. Cutting out fallen trees on the hillside and putting a railing along the ridge overpass is really all it needs. (Interesting history – horses and hikers used it before the construction of the present trail out of the campground by the Civilian Conservation Corps in the middle 1930s. I am not sure where hikers and horses went through the rocks at the top of the slope; surely not the present route. My sister and I as small children went over that trail on a horse led by our parents on our way to Kings Creek).

b – Head of the Valley Trail – Presumably, the title refers to the old Sifford trail to one of the sources of Hot Springs Creek, the springs high to the north of the Devils Kitchen. It is a nice trail (when cleaned of fallen trees), and it leads to a beautiful hanging meadow with cascades of water, graced by lilies and Grass-of-Parnassus blooms amid boulders from the cliffs above the springs. I hesitate to recommend reopening, as the springs crossing is environmentally delicate.

c - High Trail above Devils Kitchen – It is approached on the north side by the Head of the Valley Trail, and as such it will impact this delicate area. It passes south through the forest high above the Devils Kitchen and goes down the east side on rather open slopes with a handsome Incense Cedar stand. The hiker ends up on the south side of the creek, and either a bridge is necessary there or a trail east to the join to the trail to Drakes NA_WatsonS-12

Lake, where a bridge is really needed now. There would be a lot of construction and maintenance on this trail if it were approved.

d - South Trail along Hot Springs Creek to Park border – This is Roy Sifford's old "ice cream ride" trail that he used to take us kids to the old Wonderland Post Office and soda fountain near Kelly's Camp for treats. There are nice views and interesting geology along this trail. It is entirely possible to reconstruct this trail, but it is lengthy and in places full of alders. At the Park border, the hiker is on the south side of Hot Springs Creek, and a bridge would have to be constructed to continue. Else, it ends there.

e -Ultimately, the financial aspects –maintenance and operation as well as initial construction costs - will be determinate in the decisions on these trails. The environmental impact on the springs at Head of the Valley is important, and the length and blind end of the South Trail make it somewhat impractical. **Of all the trails, my opinion is that the Golden Staircase (Kitchen Trail) is a priority – for pragmatic reasons**. NA_WatsonS-12 cont.

3 - The Corral

The plans for a bio-filtration interface with the corral's cultural/natural interface are good and an answer to the problem of effluent draining into the meadow. The decision to leave the corral essentially in the same place in Alternative 2 is the best one in spite of the horsy odors wafting over camp. There really is no other satisfactory place both in environmental and in historic terms. Using the "Bone Yard" for an extension of the corral is problematic if the propane tank and service lines cannot be moved. **These proposals, except for the bio-filtration plan, should await the resolution of the possibilities of moving services.** NA_WatsonS-13

IV - **Lack of Research and/or Understanding of Several Issues**

Within the DEIS, there is no definition of a "ditch", nor any way of distinguishing ditches from natural water channels. There have been no geo-technical reviews proposed where necessary or desirable, and no in depth geology studies specific to the Warner Valley has been presented. NA_WatsonS-14

A – Ditches

We all know what a ditch is, don't we? "1-A ditch is a long, narrow trench in the earth, made by digging, usually for carrying water." (Webster's *Unabridged Dictionary, Second Edition)*. Unless the spoils from the digging are carried away, they remain by the ditch in an elongated elevated mass. So it is in the Drakesbad Meadow. There are only three known ditches in the meadows. One, the so-called Drake ditch, extends east in the lower (east) meadow well out from the front of the lodge (originally Drake's lodge) generally toward where the pump house used to be. It used to have several branches, one to the north toward the duplex bungalows and one to the south. Those are somewhat obliterated now, but the main ditch is readily visible along with the spoils along the entire length. The spoils have remained in place for about 115+ years. Another ditch is the Sifford ditch, and that one runs by the trail in the upper (west) meadow. It is very visible, and no one would mistake it for anything but a bonafide ditch. The spoils are there, and they have remained in place for over a hundred years. The third ditch is the one that runs NA_WatsonS-15

under the small bridge at the end of the horse path and foot trail near the creek. There should be other watercourses that are real ditches. Roy Sifford's comment "The land in front [of Drake's house] had been grubbed of willows and some grubbing and drain ditching had been done on the south side" leads to the belief that some evidence should be found there and in other places (Roy Sifford, *Sixty Years Siffords Drakesbad*, Vol 1, p.4). A "channel" is, according to Webster's dictionary "the bed of a stream, river, etc.; the hollow or course in which a stream flows" (Webster's U*nabridged Dictionary, Second Edition*. The only way to distinguish ditch from channel is to go to the meadow when the snow is nearly gone and the grass has not yet grown. This is a short window, as the grass grows fast, but it is a necessary exercise in order to distinguish human built ditch from naturally caused channel. Until that exercise is done, all else is speculation or bias. **Studies are necessary to tell which are ditches and which are channels in the meadow.** NA_WatsonS-15 cont.

B – Geo-technical Review

1 - Alternative 2 and Alternative 3 propose new quarters for employees to a new housing and service center located on a "flat bench outside the historic district" (2-30, 2.43), Alternative 2 using tent cabins, and Alternative 3 has a two-story building. New employee housing is the first priority facing Drakesbad. The current situation is untenable and must be remedied. Temporary use of the much-maligned trailers should be authorized in order to correct to some extent the serious staff occupancy problems caused by their loss of permitted use. Unfortunately, two problems affect the preferred site, one geologic and the other social. The area proposed for this "village" is a location that has many large boulders, some cabin-sized like Indian Rock, that have fallen from the cliffs above the site. I was in the area several years ago on an archaeological walk and was surprised to find so many large rock falls. **A geo-technical appraisal of the cliffs in this area is strongly called for. Rock fall from Flatiron Ridge is always possible, but this area seems to be particularly susceptible. It would be ethically irresponsible not to research this site in more detail if overnight habitation is proposed.** NA_WatsonS-16

2 - The other problem is social. The placing of young employees together at some distance from management oversight is not advisable. The employees are, generally, older teenagers, many from abroad, and the problem of oversight is one with which every manager has had to contend. I was a 17 year-old employee myself at Drakesbad, and, although I, being somewhat stuffy, didn't take part in the extracurricular parties, almost everyone else did. Roy and Pearl Sifford gave frequent lectures**. There should be more discussions with managerial people as to plans for supervision of young employees.** NA_WatsonS-17

C – Geologic Review of the Valley Floor

Chapter III, Affected Environment, Local Geology (3.1-1) lists a number of earthquake faults in the Warner Valley, the information attributed to the Patterson report of 2005. As the author was not knowledgeable in geology and did not study the substrate in the valley, it would be well to confirm the information. NA_WatsonS-18

V – Technical and Economic Infeasibility Issues

There are several issues that are addressed in the DEIS but that have not been analyzed as to technical, economic, or even historical implications. They include Dream Lake, the proposal to fill the ditches in the meadow, the water tank roads, and circulation and parking within Drakesbad. Also, the campground/day use parking and user demand plan has technical difficulties as well as questions on the fulfilling of needs. Some plans, such as boardwalks across the meadow, should be deferred until more knowledge of the hydrology of the meadow is known. NA_WatsonS-19

A- Dream Lake

There are 154 mentions in the DEIS of Dream Lake, so it is an important issue. The lake has been the focus of disputes for many years and has been rescued from the damage of beaver dam building by the installation of "beaver-deceivers". It has been a cause celebre for Drakesbad guests. Alternative 2 proposes removing the dam and creating a stream-filled wetland, and Alternative 3 proposes rebuilding the dam. Neither is a very practical idea. Both are technically and economically difficult. The results of Alternative 2, the restored wetland complete with fishermen and no beavers, is not only expensive, but unrealistic – natural flows do not necessary care for planned landscapes. I remind you that the fish in Dream Lake were planted; no fish migrated up the natural flows. The current policy in the Park does not permit fish planting. Alternative 3 calling for a rebuilding of the dam is not only expensive, but environmentally dubious with the use of heavy equipment, by helicopter or not, in a very wet and sensitive area. Neither plan understands that the lake has been filling in over the years and that the water is shallow. It is a beautiful little lake, but all lakes deteriorate over the years. The best solution is to let it go with dignity. It is understood from the Bureau of Reclamation reports and others that a break in the dam would not affect life or property (3.2-2). Removing the unsightly beaver deceivers along with the metal debris still visible near them may help for greater flows from the lake, taking pressure off the dam and prolonging the life of the lake. There is no reason that the non-native beavers cannot be controlled at this critical outflow. This decision will be greeted with joy by most of the Drakesbad clientele, save all kinds of money, and spare the surrounding landscape from mechanical insult. In the future, we can end up with a naturally created, new landscape probably very close to the original. I remember seeing the area where the lake had been after the dam went out in 1938. It was a nice little dell with streams going through it. Equally, the question of a rebuilding the dam can be addressed at that point. **Dream Lake is an integral part of the historic Drakesbad scene in the National Register of Historic Places. The lake should be studied by a professional limnologist to ascertain its water depths, biologic make up, and ability to continue to function as a lake (as distinct from the studies on the dam) before any radical decisions are made.** NA_WatsonS-20

B- Filling the Ditches

1 - Alternative 2 provides for "the filling of man-made ditches throughout the meadow and other improvements to increase surface water flow to the meadow from upland springs" (4.2-5). With what material would the ditches be filled? How would they be NA_WatsonS-21

filled? With constantly running water, how would the filling remain? Would natural channels be filled? What will you do if the mountain pocket gophers keep digging tunnels? Until these questions have serious answers, the recommendation is incomplete. If the filling is to be the spoils material beside the channel, it is a ditch, and the natural soil can be used – if it will stay in place. If there is no spoils material, it is a channel, and if you are going to dig dirt in the meadow in order to fill channels, this choice has serious environmental problems. If you are going to use imported dirt, this choice has even more serious environmental problems. **Clearly, more study and definition of terms need to be done on this issue of filling the ditches.** NA_WatsonS-21 cont.

2 - Alternative 3 provides for the use of "sheet metal dams in the existing ditches to impede flow from the meadow rather than filling the ditches"(4.2-7). The pilot restoration project has used sheet metal baffles with immediate success, but long term success seems to be dubious, as the water is now flowing around the dams and eroding the soils in the banks. The Siffords used dams, but the use was temporary for irrigation, and the dams were frequently moved. (Watson, S., Comments on the *Drakesbad Historical Application,* Nov 2003, p.7) They were not left in over winter. **This proposal assumes that in a natural state water from the springs sheets evenly across the meadow. This rationale presumes the substrate is known, but no evidence for the research on the substrate was presented in the DEIS. Evidence needs to be gathered on this important issue.** NA_WatsonS-22

C- Ranger Station Water Tank Road and the Drakesbad Water Tank Road

1- Alternate 2 proposes building a new road 130 feet from the Warner Valley road to the Ranger Station Water Tank facility (2-27), while Alternative 3 would retain the present road with the addition of a culvert at the bottom of the slope and a chain gate to prevent public entry (2-40). The first question is about the distance. Is the testing equipment too heavy for the person testing the water to walk the 130 feet? If a road is truly needed for access, the installation of the culvert at the bottom of the slope for drainage and a chain gate would seem to be the most logical and economic proposal. **Both Alternative 2 and Alternative 3 need to have better explanations of their purposes and needs**. NA_WatsonS-23

2- Alternative 2 proposes rebuilding the road to the Drakesbad Water Tank with a permeable roadbed and narrower width (2-35). It would also retain the exiting culverts. Alternative 3 proposes adding additional culverts under the exiting road (2-47). Alternative 2 seems pricey with the rebuilding of the road, but is it adequate with the retention of the existing culverts? Alternative 3 is not as expensive but indicates the need for more culverts. Neither of these proposals appears to be adequate resolutions of the problem of diversions of spring water by the road. **There was a draft plan drawn up earlier that used the existing road and followed the upper side spring channels to determine where culverts should be placed. This plan should be reviewed again. It would make more sense environmentally and economically.** NA_WatsonS-24

D - Circulation within Drakesbad and Parking

Alternative 2 would designate parking areas and limit overnight guests to two cars per unit. It would also designate short and long-term parking, close the loop road at the three Mission 66 bungalows, and redirect overflow to the new day use parking area ((2- NA_WatsonS-25

35). Alternative 3 would substantially do the same (2-47). Closing the Mission 66 loop, which works very well now, would seem to cause cars to have to back out on the main road and would restrict easy and safe movement of vehicles. It will hinder the passage of electric service carts for all three buildings. The DEIS gives no rational for this proposal. Designating parking areas with boulders – unless they were placed with the sensitivity of the new Half Dome view pullout at Yosemite – would be destructive of the ambience at Drakesbad. The DEIS gives an example of a placed boulder (2.35), but did not give a pictorial description of the locations of the proposed many boulders. Much more information needs to be given in order to evaluate this proposal. How many guests now have more than two cars per unit? If the overflow parking is at the proposed day parking lot near the campground, would this situation put walkers on a long hike on the main road, a condition the DEIS worries about with Pacific Crest Trail through hikers (2-29)? (Walkers are not as vulnerable as through hikers?) The parking spaces to be created below the annex and near the managers cabin (duplex) (figure 2-14) would be put into a dry meadow/forest interface with drainage slopes, and, if created and filled with cars, would make the entrance to Drakesbad look like a parking lot. **All of the parking-circulation issues should go back to the drawing board. The creative uses that exist now can be refined, but, generally, they are functional, a circumstance I cannot say about the proposed plans on the slim information given.** NA_WatsonS-25 cont.

E –Warner Valley Campground, Day Use Parking, Trail Use

1 - These proposals (2-27, 2-29, 2,30, and 2.43) are interlocked. I toured all areas on September 14. The upper campground, which would have the 5 existing lower sites added to it, seems to be a topographically restricted area. It was not readily apparent to me where 5 more campsites could go, as the ground slopes off strongly to the east and the south. One of the nice things now about that campground is the relative size of the sites and the relative privacy that they have offered to those using them. I understand, too, that users of the lower campground prefer it because it is close to fishing. NA_WatsonS-26

2 - The Pacific Crest Trail (PCT), which passes through here with a disjuncture to the west, would be realigned directly to a closed lower campground (2-29) through the enlarged upper campground. It is not clear how the re-routing of this trail would impact the increased number of campsites in the upper campground. It is not understood in the DEIS that many through hikers take Warner Valley road to go to Drakesbad for meals and showers and then go back to the campground for the night. (Drakesbad is featured in many Pacific Crest hiking books as a preferred stop on the way.) As the great majority of through hikers go from south to north, the hikers go back to Drakesbad for a last "real meal" of breakfast and go up the Golden Staircase to continue on their way. Very few through hikers go the other way (south) and would use the new trail connecting the proposed parking lot to the continuation of the trail to the west. NA_WatsonS-27

3 - Day users would use the proposed new parking lot, though, and there are a great many more of them than of through hikers on the PCT. The new parking lot would not serve the overflow parking for Drakesbad, as it is too far away to serve the purposes. The current day-use parking lot should never have been built where it is, but it was. The area is a "dry" meadow, in that it dries up in the late spring, but there are wet areas to the west, which could use more boardwalks.

There are very mixed practicalities in these proposals. To me, there is no preferred answer. The question is more which user do you want to serve and at what cost? NA_WatsonS-27 cont.

Boardwalks

Boardwalks are great structures when used to cross wet areas. Alternative 2 proposes using a 6-8 feet wide boardwalk to cross the meadow in place of the current cobble horse trail (2-35). Alternative 3 proposes using a boardwalk to the swimming pool wide enough for small service vehicles (2-47). These are expensive constructions, and I have suggested earlier (3-C-1-a) that decisions on designs wait for further definition of the hydrology of the meadow. Trails where current wet situations occur, sections of the PCT from the day parking area to above the hot springs, and sections of the Boiling Springs Trail on the south side of the creek above the swimming pool, could use boardwalks now. Places along these stretches, used by both Drakesbad guests and the many day hikers, are being damaged. Hikers have to go off trail or slog through mud and wet-area wildflowers to continue the hike. These are heavily used trails that need immediate attention. **Defer the boardwalk plans across the meadow until the hydrology of the meadow is settled.** NA_WatsonS-28

VI – **Omissions That Have Important Effects on Planning**

There are several omissions in the DEIS that should have appeared. They include the historic footpath of the meadow, three more dump sites than mentioned, flood incidents in the meadow and deductions about the nature of the meadow, and the lack of evidence (in the DEIS) of the knowledge of the geologic substrate on which planning in the meadow is based. NA_WatsonS-29

A- The Historic Hiking Trail Across the Meadow

I looked for any mention in the DEIS of the historic hiking trail across the meadow, the one that roughly parallels the horse trail. This trail has always been there as far as I can remember and undoubtedly predates me by a long time. Its purpose is obvious: it allowed people, horses, and vehicles (the horse trail was originally a small road that allowed horse and wagon use to the Drake/Sifford campground by the creek) to have separate means of crossing the meadow. It is part of the historic district. It still serves to separate horse trains from people walking. **Recognition of this historic use should play a role in whatever design is chosen to replace the current horse trail.** NA_WatsonS-30

B - Trash Dumps

Under Natural Resource Issues (1-5) the DEIS states that it should "(c)onsider clean-up and restoration of meadow at old trash dump at the upper end of the Drakesbad Meadow (second bullet). There is at least one "old trash dump" at the meadow, aspen, and lodgepole interface at the upper end of the meadow, but also there are two old trash dumps in the forested area to the west just off the cross trail from the Devils Kitchen Trail to the Drake Lake Trail. Yes, they should be cleaned up and tested for toxic materials. There is a third trash dump, now mostly gone, along the Warner Valley road east of the campground. We used to go down there in the evenings to watch the local bear scavenging. **All these areas should be checked for toxic materials.** NA_WatsonS-31

C – Local Hydrology and Flood Incidents

1 - The section on Hydrology (3.2-1) does not include the number of bridges that have been wiped out by winter and spring floods in the Drakesbad area. The trail to Boiling Springs Lake in the Sifford era used to begin by the swimming pool with a high bridge that crossed the creek at that point and led to the trail going up the slope. The bridge was always rickety but never washed out. In the 1960s, the Park started to built a series of low lying bridges over Hot Springs Creek for foot and, later, horse traffic at the creek bend near the base of both the horse trail and the hiking trail across the meadow. Every few years, a bridge was washed out by flood and the debris carried down by high water. Every few years, it would be rebuilt until patience gave out in the mid 1990s, and a new routing was selected. The new bridge over Hot Springs Creek replaced the big log that crossed the creek to the Dream Lake trail, thereby serving both trails with one high bridge and taking hikers and horses alike over the water safely. That first bridge washed out in the floods of 1998, the winter after it was built. The new bridge is higher and stronger, and it remains to this day. When this bridge was built, the supports were dragged across the meadow, leaving tracks. The construction crew drove a truck to the end of the horse trail, where it sank in mud. The ruts made by this awkward situation are obvious to this day.

2 - The text gives the historic dates of flooding in 1938, the demise of the Drake Lodge, and in 1952, the second collapse of the Dream Lake Dam. However, there have been repeated events. Recent ones have occurred in 1986, 1997 (in both years there was flooding in the meadow with scour and fill processes), 1998, and 2004. **Planners should be aware of these recurring events in order to be able to design crossings that can withstand the power of floods and their debris carrying capacity, to understand processes in the meadow, and to avoid construction damage to the meadow.** NA_WatsonS-32

D- Geologic Substrate of Valley

There are some declarations of geology in the DEIS (e.g. 3.1-1, 3.1-2) but there is no evidence that it plays a major role in the interpretation of the valley or the meadows. The presumption of the "sheeting" of water across the meadow (e.g. 3.2-2, 3.3-5) does not take into account the variable topography of all the meadows. There are lumps and bumps – high points and depressions**. The lack of a detailed geologic element in the DEIS may very well skew the interpretation of the hydrology of the meadow.** NA_WatsonS-33

Other Comments to the DEIS:

1- The Pool and the Bathhouse

Alternative 2 proposes rebuilding and adding on to the Drakesbad bathhouse (2.33). Alternative 3 proposes much the same thing with a different configuration of the bathhouse (2.46). Although I believe that Alternative 2 has the greater merit, both have the right ideas in incorporating the filtering equipment into the bathhouse and of advocating alternative power sources other than propane. Alternative 2's extension of the bathhouse of 15 feet 6 inches toward the pool and its configuration of rooms I find preferable to Alternative 3's extension of 22 feet 2 inches toward the pool. During my tour of the facilities in September 2009, I was shocked over the amount of dry rot that NA_WatsonS-34

was in the supports of the current structure. Surely, after the first priority of employee housing, this replacement is the second priority. The coping of the pool, however, is very new, and it is not economical to replace it with something more desirable for the scene until replacement is necessary. **Alternative 2 plans for the bathhouse should be implemented as soon as possible but not the changing of the coping of the pool.** NA_WatsonS-34 cont.

2- The Warner Valley Road Improvements

Practices should follow the State regulations SWPPP (Storm Water Pollution Prevention Plan, and the BMPs (Best Management Practices). It is a little generous to refer to the road as being two-way traffic (2-13); it is more like single lane with frequent places to pull out. Nevertheless, that road is dear to the hearts of old Drakesbad people for all its problems and difficulties of passage. It makes the arriving at Drakesbad all the more wonderful. NA_WatsonS-35

3- Energy Systems

I am pleased over the use throughout the DEIS on examining the possibilities of alternative energy systems over the current propane-driven use. When I worked at Drakesbad, there was no electricity, and the cook used an enormous wood-burning stove for all meals. The air was free of the exhaust and noise of the generator. Those days disappeared after World War II, as the Siffords were not able to find cooks that could or would use a wood-burning stove. Although the availability of usable technology and its economics will drive any new energy use at Drakesbad, further research into some use of clean energy sources would be desirable. **At present, the DEIS gives no specific information on clean energy plans, and, although desirable, they cannot be evaluated.** NA_WatsonS-36

4- Aesthetics and Small Scale Features

It would be good for the scene if the dumpster, the generator, the propane tank, and the "bone yard" storage mess could be relocated to a new service center. As the new preferred site may be dubious, relocation may not be possible. Even if a new site is selected at a distance, relocation may prove to be economically and environmentally difficult – all the lines would have to be changed. There is no reason that small scale adjustments cannot be made in place to the features. The area of the "bone yard" and the four hill cabins is aesthetically lacking at present. The water and sewer line clean outs are intrusively visible. It is hard to tell what is storage and what is junk. Much more should be done to clean up this area. I agree that the outdoor dining area needs to have a better surface. The current large pebbles are difficult to walk on, and moving a chair over them is even more difficult. Refacing the walls of the hill cabin porches is desirable; however, there are greater priority needs. **There are many aesthetic improvements that can be made to accommodate the small scale features right now, no matter what long-range plans are decided.** NA_WatsonS-37

5- Errata: In Table 4.1 (4-2), "List of Projects Contributing to Cumulative Impacts at Warner Valley", noted under the year 1963 "two duplex cabins are constructed with Mission 66 funds". There are three duplex cabins, and I believe they were all constructed in the same year with Mission 66 funds. NA_WatsonS-38

Comment Letter NA_WatsonS

Goshawks (3.3-7) – I have seen goshawks several times in the area of the far trail east of Boiling Springs Lake. NA_WatsonS-39

6- One Last Comment

The Drakesbad Meadow has been altered repeatedly since the coming of settlers of European origin to the area. It has been camped in, built in, planted in, grazed over (starting with the earliest visitors during Drake's tenure), and finally made it into a cultural artifact. The National Park Service for years ignored it, built and rebuilt a water tank road that starved portions of it for water, created a sewer system in it, loaded it with boulders to create a road and road base to create another, dragged the supports for a bridge across it, and allowed a truck to carve ruts in it. Now, we are planning for it. **It is important that we get this one right – that we understand the meadow well, scientifically, historically, and culturally – and make the choices that will allow it to be preserved in all its aspects and to continue to delight the hearts of all people who visit it.** NA_WatsonS-40

Thank you for the privilege of reviewing this document.

Comment Letter NA_Susan Watson

NA_WatsonS-1

Comment noted.

NA_WatsonS-2

The comment states that the plans for the meadow are almost entirely based upon a masters thesis (Patterson, 2005)[6], which has never been independently reviewed by professionals in the field aside from the candidate's own committee. The commenter then states that, "this does not mean necessarily that the thesis is incorrect in its assumptions and recommendations, but it does mean that it has not been independently assured that it is correct".

Please refer to the response to comment NA_WatsonC-1. Regardless that the Patterson study is a master's thesis, it remains an integral piece of technical work and the only one of its kind prepared to further the understanding of the function and ecology of Drakesbad Meadow. Patterson (2005) was technically peer-reviewed by the NPS and was provided to ESA (preparers of the EIS) as a technical resource. ESA's in-house California registered professional geologist reviewed the study for technical adequacy and determined that it was appropriate to support the analysis in the EIS. Contrary to the claim by the comment author, the Patterson study (2005) did receive technical peer review beyond the candidate's own committee as it was published by the Society of Wetland Scientists in the June 2007 issue of *WETLANDS* (Volume 27, No.2).[7]

NA_WatsonS-3

Comment noted, see responses below.

NA_WatsonS-4

The comment states that there seems to be no distinction between the generic "meadow fen complex" as the entire middle meadow and the term "fen" as a specific soil. The commenter points out that the definition of a fen in the glossary of the EIS and then states that "it is no help at all in acknowledging any defined and scientifically accepted classification system of soils", leading to the conclusion that "any classification system used should be identified in detail along with its authority in order for any plans to be valid."

Please also refer to the response to comment NA_WatsonC-1. Considering the overall objective of the project, which is restoring a mountain fen wet meadow to a similar hydrologic character that existed before human interaction drained it for grazing and other uses, the classification of the meadow as a fen is adequate for the project and the EIS. The soils in this meadow formed under conditions that are indicative of fen ecology (as opposed to a bog, for instance). Unlike a bog, the meadow is fed by a perennial groundwater source. Regardless of the extent and precise classification of the soils, it is indisputable that the materials in the meadow are, for the most part, characteristic peatland soils with adequate organic content. By proposing to restore Drakesbad Meadow under the assumption that it is a fen and returning its hydrologic function to natural

---

6 Patterson, Lindsey S., 2005. *Hydrologic Characterization of a Mountain Fen Complex, Drakesbad Meadow, Lassen Volcanic National Park, Cascade Range, California*, Graduate Thesis in Ecology.

7 Patterson, L and Cooper D. J., 2007 *The Use of Hydrological and Ecological Indicators for the Restoration of Drainage Ditches and Water Diversions in a Mountain Fen, Cascade Range, California*. WETLANDS, Volume 27, No.2, Pages 290 – 304, June. Copyrighted by the Society of Wetland Scientists.

conditions, the NPS is proposing the most conservative approach which will result in the most rigorous restoration management scenario. It is also important to state that the proposed conceptual restoration plans for the meadow are reasonable and would continue to be developed in more detail as the final implementation of the restoration activities get underway. Restoration success would also be subject to ongoing monitoring (adaptive management).

NA_WatsonS-5

The comment states that there is a discrepancy in the way the EIS categorizes soils. The comment claims that in one instance the EIS describes "…a large meadow that is one of the largest known fens in the western United States," and then states "In the Warner Valley area, the middle Drakesbad Meadow consists of a complex relationship between organic-rich soils on an alluvial fan and mineral soils on an active floodplain where the flood scour and fill processes dominate."…"Organic-rich soils are located across the northern half of the middle Drakesbad Meadow. The organic soils are predominately peat loams to mucky loams." The comment concludes that, on examination, one is forced to admit that these are not the same interpretations.

Please also refer to the response to comment NA_WatsonS-4. The interpretation of soil types and occurrence for the analysis in the EIS relied on both Patterson (2005) and AGE (2004).[8] The EIS attempted to merge the available information on soil characteristics to best describe the existing environment. The EIS did not focus on the subtleties of the soil types and distributions because the overall objective of the restoration is to return the meadow to the original hydrology by eliminating the drainage ditches that alter the ability of the meadow to function as it did prior to human interaction. The purpose of the EIS is to determine whether the proposed action would result in significant impacts on the environment and uses available data to do so; in this case, the EIS is not technically deficient because it chooses to generalizes the soil types and distribution. For the purposes of the EIS analysis, precise soil characterization is not necessary to determine whether eliminating human alterations in the meadow would or would not result in adverse impacts to the environment. The NPS would conduct more in depth investigative work regarding the soils and their classifications as the restoration plans are finalized and move closer to the implementation of the restoration strategy.

NA_WatsonS-6

The commenter states that pocket gophers have been active in the meadow for several thousand years. That gophers have been active for several thousand years is unknown. The commenter also states that there is no definition of why the tunnels are "destructive" and that there should be research on what role it plays in the ecology of the meadow.

The National Environmental Policy Act requires an EIS to evaluate the significant impacts of a project. This Environmental Impact Statement was written based on the expected impacts of the proposed project. Gophers are generally considered beneficial in the natural environment. Through their tunnel building, they disrupt soil layering, aerate the soil and cycle nutrients. Gophers can also drastically affect the local plant community destroying vegetation by burying it and through root herbivory. The proposed meadow restoration would include elements of adaptive management that will monitor the success of restoration efforts based on ecological markers or criteria for success.

---

8 Advanced Geological Exploration, Inc, (AGE), 2004. *Phase II Soils and Tephra Sampling, Geologic Research Project, Drakesbad Meadow, Lassen Volcanic National Park*. Prepared for the National Park Service, Lassen Volcanic National Park, Mineral California, 24 March.

NA_WatsonS-7

Commenter notes that beavers should be managed when they are destructive to ecologically sensitive areas. Please see the response to comment NA_BellC-21.

NA_WatsonS-8

The commenter states, regarding Drakesbad Meadow, “there is no acknowledgement in the EIS of what is trying to be restored.” The NPS land managers aim to restore disturbed lands to their previously unimpaired natural condition while balancing protection of important cultural resources. These objectives are described in Chapter 1 of the EIS. The meadow restoration would be guided by the Patterson Cooper (2005) research, which examined historic photos and seedbank analysis and will utilize an adaptive management approach, as common in most ecological restoration projects.

NA_WatsonS-9

Comment noted. Please see the response to comment A_WFEN-3 for additional information.

NA_WatsonS-10

The commenter suggests that a hydrological study of Drakesbad Meadow take place before design work that would modify the paths that cut across the meadow. Please see the comment and response for: NA_BellC-17.

NA_WatsonS-11

Comment noted.

NA_WatsonS-12

Comment noted.

NA_WatsonS-13

Comment noted.

NA_WatsonS-14

See response to NA_WatsonC-3.

NA_WatsonS-15

See response to NA_WatsonC-3.

NA_WatsonS-16

The comment states that the area proposed for employee housing is located in an area that has many large boulders, some cabin-sized like Indian Rock, that have fallen from the cliffs above the site. The comment states that a geo-technical appraisal of the cliffs in this area is strongly called for.

Please refer to the response to comment NA_WatsonC-9. The NPS considers geologic hazards in placing visitor and employee facilities while realizing that it must preserve these processes to the extent practicable. The 2006 National Park Service Management Guidelines (as listed in comment response NA_WatsonC-9), address siting, construction of facilities in areas considered geologically hazardous. Through the existing management guidelines, the NPS would adequately review placement of facilities in areas that may be susceptible to geologic hazards such as rock

fall. The NPS follows all state and federal laws that apply to new construction. All construction projects are subject to geotechnical review (including seismic, geohazard, flood, etc) as part of the design process. The NPS is not exempt from the building codes and regulations.

NA_WatsonS-17

Comment noted.

NA_WatsonS-18

The comment states that the geology chapter lists a number of earthquake faults in the Warner Valley that was attributed to the 2005 Patterson report and asserts that it would be well to confirm the information.

Please refer to the response to comments NA_WatsonC-7 and C-8. The analysis of seismicity in the geology chapter of the EIS relied on sources[9] other than Patterson to prepare a seismic setting necessary for this particular proposed project. Other sources included the California Geological Survey. For the purposes of this EIS, the description of the seismic environment is adequate to analyze determine the impacts of the project.

NA_WatsonS-19

Comment noted; see responses below.

NA_WatsonS-20

The commenter suggests that Dream Lake be studied by a professional limnologist. In advance of this EIS, the NPS contracted a geotechnical investigation and water quality analysis conducted by Kennedy/Jenks Consultants, Balance Hydrologics, and Ltd. Engineering. The resulting technical report is called, Final Title I Schematic Design Report, May 2007. Recommendations from this report have guided the alternatives proposed for the Dream Lake Dam. Also see the responses to comments NA_BellC-19 and NA_BellC-20 regarding the analysis surrounding the decision to restore Dream Lake to a riparian habitat.

NA_WatsonS-21

The commenter asks about the type of material that would be used to fill the ditches, how this repair would be maintained. The Patterson/Cooper report recommends that identification of impacted sites to complete the meadow restoration should include the remaining drainage and irrigation ditches. Once identified, these ditches would be filled with soil allowing plants to revegetate, which would hold the soil in place and create the hydrologic connectivity.

NA_WatsonS-22

In further commenting on solutions to restoration of meadow ditches, the commenter states that there is no evidence for the research on the substrate. It is not entirely clear which substrate the commenter is referring to. If the commenter is referring to the substrate in the meadow, this is presented at length in the Patterson/Cooper report and this report was used to design restoration solutions.

---

9 California Geological Survey, and Wiss, Janney, Elstner, Associates (WJE).

NA_WatsonS-23

The commenter asks whether an access road is required for testing at the water tank. California Department of Public Health, Title 22 requires vehicle access to monitor and maintain drinking water supplies. The proposed action would also restore the current impact on the drainage/ wetland area. Per Executive Order, the NPS mandate is to restore as much degraded wetland as possible.

NA_WatsonS-24

The commenter notes with regards to the Drakesbad water tank road alternatives that a previous "draft plan was drawn up…that used the existing road and followed the upper side spring channels to determine where culverts should be placed…that should be reviewed again". The locations of the springs constantly shifts and the NPS will continue to assess the function of the culverts each year and adjust the locations as needed.

NA_WatsonS-25

Comments noted.

NA_WatsonS-26

The commenter wants to know exactly where the new campsites would be located in the upper campground. The relocated campsite locations are shown on Figure 2-10 in the FEIS.

NA_WatsonS-27

The comment is addressed as the PCT "reroute". The proposed action is not a "reroute" of the PCT, but a connector trail along the PCT. The new connector trail will serve all hikers, PCT through hikers, in-park backpackers, and day hikers accessing the trail network from this trailhead. The purpose of the connector trail is to reduce the existing hazardous connection for the hikers along Warner Valley Road by creating a trail that is parallel to it to serve as a path between the campground and Drakesbad Guest Ranch. The location for the overflow parking for the Drakesbad guests at the new trailhead/day use parking area was not intended to be too far for guests to walk. Guests are already allotted two cars per cabin. It is the concessionaire's responsibility to assist guests if needed.

NA_WatsonS-28

The commenter suggests deferring the decision to use boardwalks across the meadow until the hydrology of the meadow is studied further. Comment noted.

NA_WatsonS-29

Comment noted, see responses below.

NA_WatsonS-30

The commenter states that mention of a historic hiking trail across Drakesbad Meadow was omitted from the EIS. It is not clear which trail the commenter is referring to. In that area, there is a historic rock-lined trail from the lodge to the creek, referred to as the Hot Springs Creek Trail. However, there is no mention of this trail in this plan because no action is proposed to occur with this trail. It will remain as is and be used by the guests that know of its location. It has minimal to no impact on the meadow hydrology.

NA_WatsonS-31

The commenter cites a comment that was made during the public scoping session period to "consider clean-up and restoration of meadow at old trash dump at the upper end of Drakesbad Meadow." Please see the response to Comment S-RWQCB-2, for further information.

NA_WatsonS-32

The NPS is very aware of the historical flooding events as well as the loss of bridges along Hot Springs Creek and has recently replaced two bridges crossing the creek with substantially flood-resistant designs (i.e., full-span, I-beam construction, abutments above high water). These bridges are the PCT crossing and the trail to Dream Lake Dam and Boiling Springs Lake.

NA_WatsonS-33

Please see the response to comment NA_WatsonC-7.

NA_WatsonS-34

Comment noted.

NA_WatsonS-35

A Stormwater Pollution Prevention Plan(SWPPP) has been included as a mitigation measure for this project (see page 4.11-2 of the FEIS).

NA_WatsonS-36

Commenter would like to see more information regarding clean energy plans in the EIS. Please see the response to comment NA_Lesea-5.

NA_WatsonS-37

The commenter suggests that there are many aesthetic improvements that can be made right now to accommodate the small scale features, regardless of the outcome of the alternative selected in the Environmental Impact Report. The purpose of the Environmental Impact Report is to evaluate each of the alternatives and select one before any construction can take place.

NA_WatsonS-38

The commenter notes that in Table 4.1, there should be three not two duplex cabins that were constructed in 1963. This has been corrected as follows:

> 1963 – Three duplex cabins are constructed with Mission 66 funds.

NA_WatsonS-39

The commenter notes that she has observed Northern goshawks in the area of the far trail east of Boiling Springs Lake. Comment noted.

NA_WatsonS-40

Comment noted.

APPENDIX A

Culvert Inventory

Appendix A
Warner Valley Road Culvert Inventory

Warner Valley Road Culvert Inventory (survey begins at park boundary and heads west)

Survey Completed by L. Johnson and D. Frein, August 24, 2005

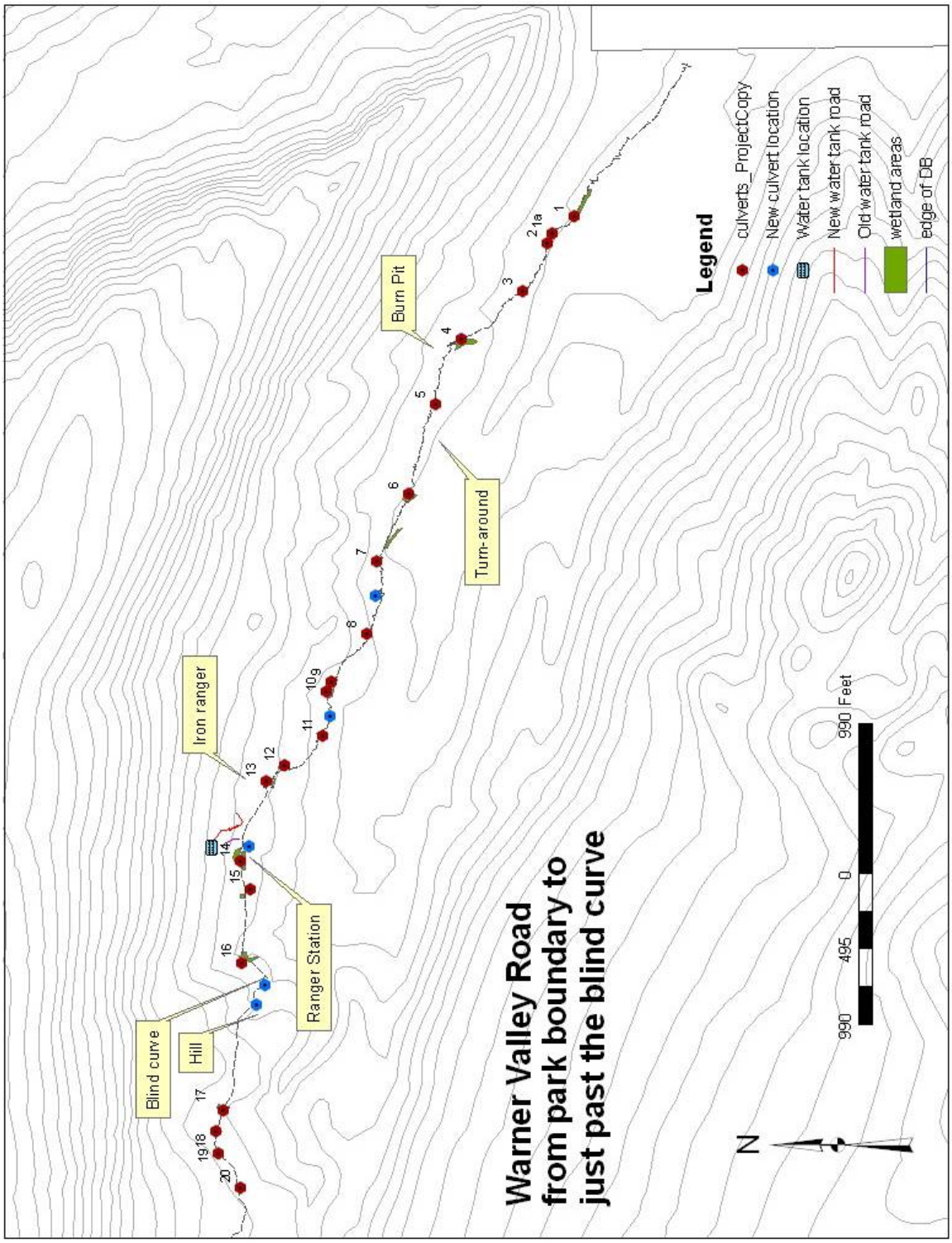
Proposed Actions Reviewed by D. Jones and L. Johnson, September 22, 2005

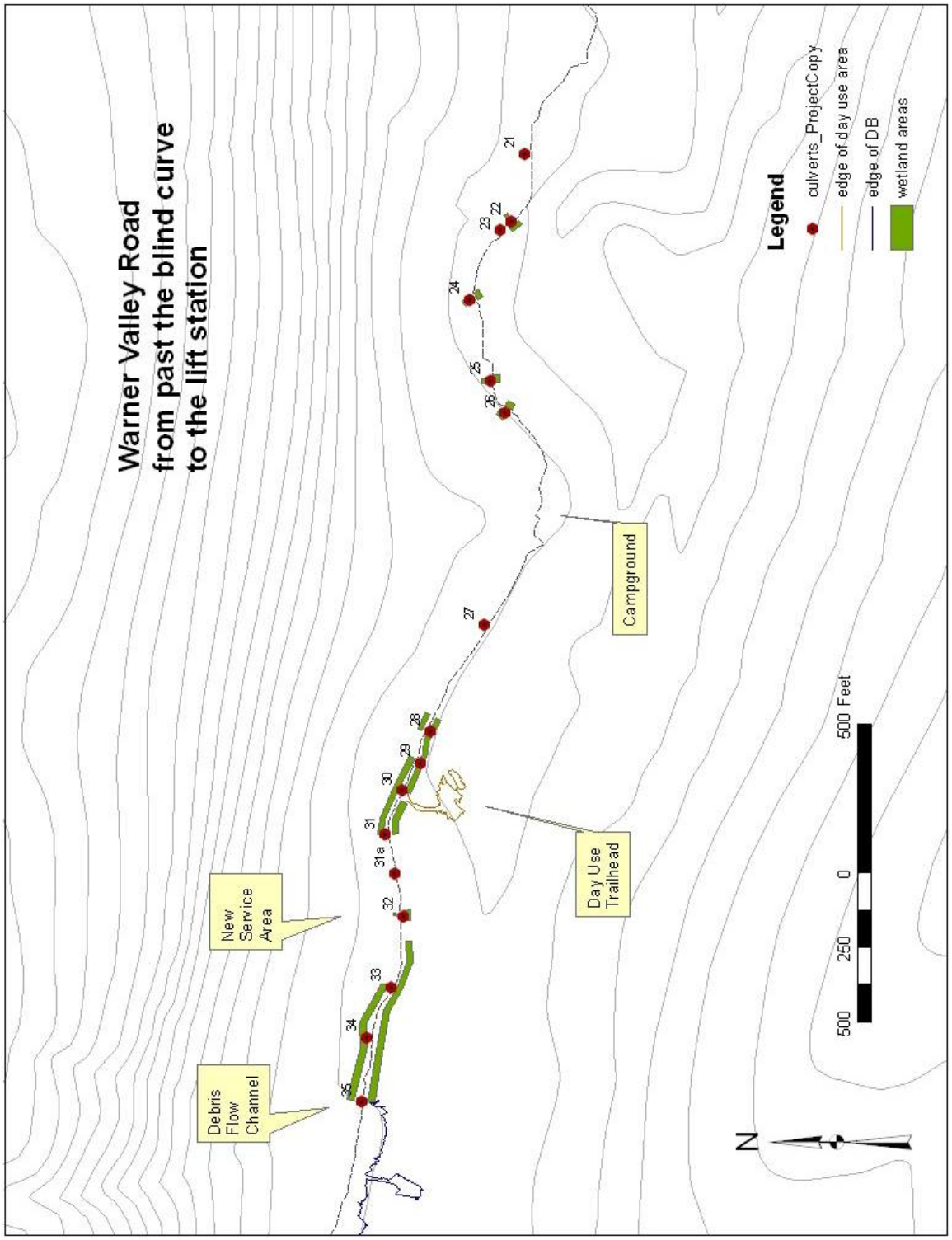
Proposed new culvert location (6)
Replace existing culvert (16)
Minor maintenance actions needed (9)

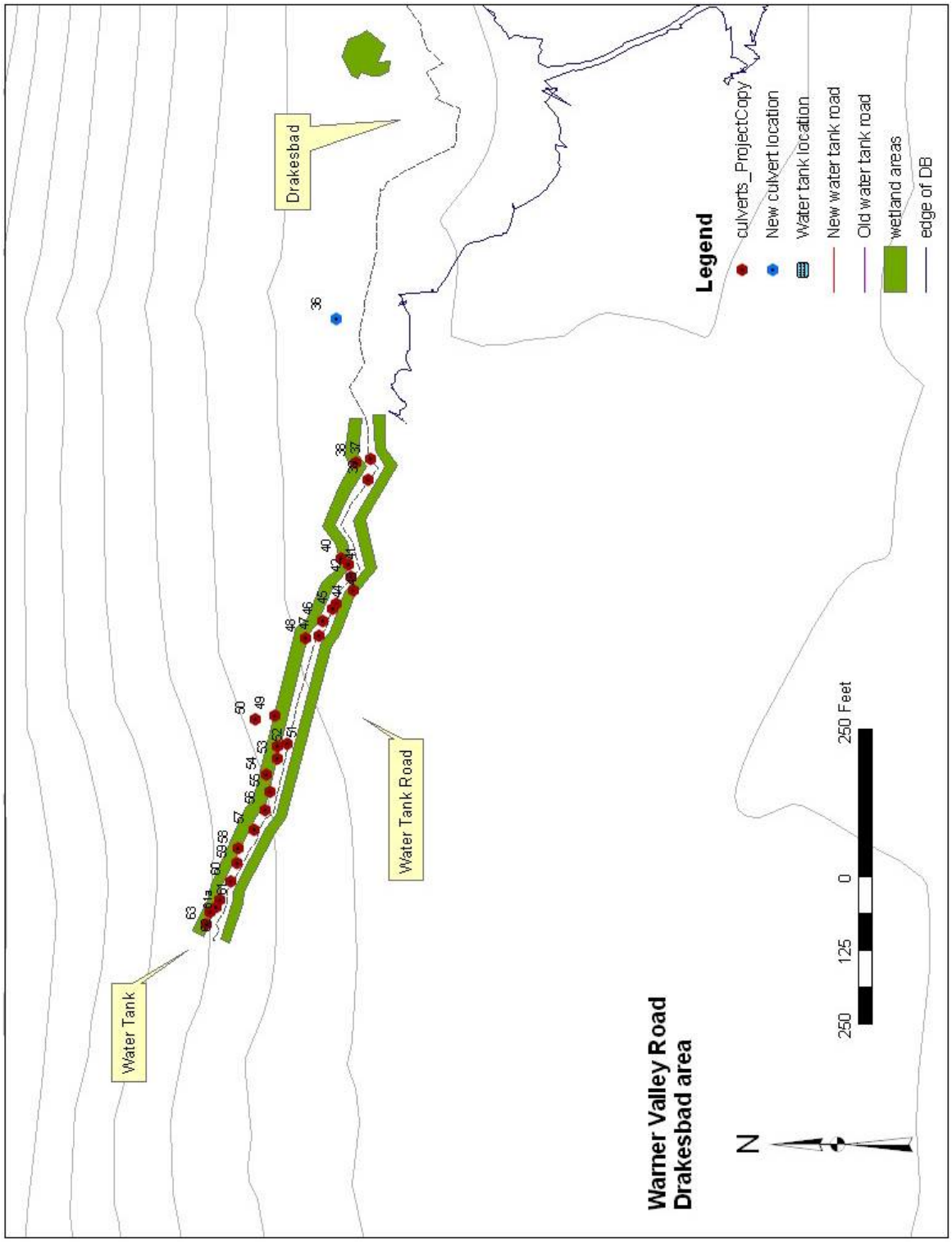
Map ID #	GPS Coordinates	Culvert Size/Type	Headwall Present	Comments	Recommended Actions
1		18" plastic	no	good condition, no drainage uphill, creek downhill	need to move woody debris out of channel
1a	need to gps	12" plastic	no	new culvert located at low point on road	none
2		18" metal	no	good condition, natural drainage	none
3		18" metal	yes, damaged	poor condition, natural drainage downhill	replace w/24" culvert, repair headwall
4		18" metal	yes	poor condition/outlet plugged (location @ burn pile)	extend existing culvert at outlet and clean outlet
5		18" metal	yes	fair condition (location at staging area/turn-around)	none
6		18" metal	yes	fair condition, natural drainage	need to clean inlet (5'x10' ephem stream); armor outlet
7		18" metal	no	long diagonal squash pipe; outlet plugged, debris	need to remove woody debris and unplug outlet
New	need to gps	12-18" plastic	n/a	long reach without culverts in ditch	install new culvert
8		12" plastic	no	fairly new road culvert, no drainage	none
9		12" plastic	no	fairly new culvert ('98), outlet at #10, natural drainage	remove woody debris from downstream channel
10		18" metal	no	fair condition, natural drainage	replace w/24" culvert; clean inlet (2'x5'); remove logs
New	already gps'd	12-18" plastic	n/a	low point in road where water ponds	install new culvert
11		18" metal	yes	fair condition, natural drainage	replace w/24" culvert; extend outlet; remove woody debris
12		18" plastic	yes	good condition ('95); overflow pipe for #13	none
13		18" metal	yes	poor condition ("iron ranger" drainage)	replace w/24" culvert, clean inlet (20'x10')
New	need to gps	18-24" plastic	n/a	wetland area only has one culvert	install 2nd culvert on east side of wetland
14		18" metal	no	fair condition, wetland/ditch area, flowing water	replace w/24" culvert; clean ditch to RS (100'x5')
15		18" metal	yes	fair condition, squash pipe, natural drainage	none
16		24" plastic	yes	good condition ('95), flowing stream, bottom of blind curve	none
New	need to gps	12-18" plastic	n/a	steep grade needs ditch culvert	install new culvert just above the blind curve
New	need to gps	12-18" plastic	n/a	steep grade needs ditch culvert	install new culvert at 15' snag tree
17		24" plastic	no	new, installed 8-24-05, drainage, minor flow	none
18		18" metal	no	fair condition, drainage with alders, minor flow	replace w/24" culvert
19		18" metal	yes	poor condition, dry drainage	need to remove woody debris up & down channel
20		18" plastic	no	good condition, fairly new, small drainage upslope	none
21		18" plastic	yes	fairly new, extends 15' downslope, no drainage	none
22		18" metal	no	poor condition, flowing stream channel	replace w/24" culvert; extend downslope 10 feet
23		18" metal	no	good condition, dry drainage	replace w/24" culvert; extend downslope 10 feet
24		18" metal	no	poor condition, minor flow in drainage,	replace w/24" culvert and extension, clean outlet
25		18" metal	no	poor condition, drainage	replace w/24" culvert, clean out inlet & outlet (2'x5')
26		18" metal	no	poor condition, flowing stream channel (east of CG)	replace w/24" culvert, realign outlet 5', clean in&out
27		18" plastic	no	new pipe ('95), rock rubble headwall, oversized basin	replace large rock in inlet with headwall
28		18" metal	yes	poor condition, trickle of water, east end of wetland	replace w/24" culvert
29		18" metal	no	poor condition, outlet not visible, seepy spot in wetland	replace w/24" culvert, clean outlet (3'x5')

Following culverts are on the Drakesbad water tank road (survey completed by L. Johnson, 09/20/2005)

Map ID #	GPS Coordinates	Culvert Size/Type	Headwall Present	Comments	Recommended Actions
30		18" metal	no	poor condition, seepy area in wetland (trailhead)	replace w/24" culvert, clean inlet and outlet (3'x5')
31		12" metal	no	poor condition, alders, natural drainage	replace w/24" culvert, clean inlet and outlet (3'x5')
31a	need to gps	18" metal	no	fair condition, ditch dug below outlet, seepy area	inlet and outlet need to be cleaned out (2'x5')
32		18" metal	no	fair condition, small drainage near new service area	inlet and outlet need to be cleaned out (2'x5')
33		18" metal	no	poor condition, flat grade, east end of wetland	replace w/24" culvert, clean inlet and outlet (3'x5')
34		24" plastic	yes	good condition, fairly new, middle of wetland, flowing	none
35		60" metal	yes	5-ft squash pipe, debris flow channel, new pipe	none
36	already gps'd	none	n/a	need to install culvert at base of water tank road	culvert is needed for small drainage west of corral
37		8" plastic	no	new culvert; no flow	none
38		8" plastic	no	new culvert; trickle of water	none
39		8" plastic	no	new culvert; trickle of water	none
40		8" plastic	no	new culvert; trickle of water	none
41		8" plastic	no	new culvert; trickle of water	none
42		8" plastic	no	new culvert; flowing	none
43		8" plastic	no	new culvert; flowing	none
44		8" plastic	no	new culvert; trickle of water	none
45		8" plastic	no	new culvert; flowing	none
46		8" plastic	no	new culvert; trickle of water	none
47		8" plastic	no	new culvert; trickle of water	none
48		8" plastic	no	new culvert; trickle of water; bedrock cutslope	none
49		8" plastic	no	new culvert; no flow	none
50		8" plastic	no	new culvert; no flow	none
51		8" plastic	yes (new)	new culvert; no flow	none
52		8" plastic	yes (new)	new culvert; trickle of water	none
53		8" plastic	yes (new)	new culvert; trickle of water; spring on road between 52/53	none
54		8" plastic	yes (new)	new culvert; no flow	none
55		8" plastic	yes (new)	new culvert; trickle of water	none
56		8" plastic	yes (new)	new culvert; flowing	none
57		8" plastic	yes (new)	new culvert; trickle of water	none
58		8" plastic	yes (new)	new culvert; no flow	none
59		8" plastic	yes (new)	new culvert; flowing	none
60		8" plastic	yes (new)	new culvert; no flow	none
61		8" plastic	yes (new)	new culvert; trickle of water	none
61a	gps'd	18" metal	no	fair condition, old culvert just below water tank; flowing	none
62		8" plastic	yes (new)	new culvert; flowing	none
63		8" plastic	yes (new)	new culvert; flowing	none


Warner Valley Road
from park boundary to
just past the blind curve
Legend
culverts_ProjectCopy
New culvert location
Water tank location
New water tank road
Old water tank road
wetland areas
edge of DB
990 Feet
990
495
0
N
Burn Pit
Turn-around
Iron ranger
Ranger Station
Blind curve
Hill
1
2
1a
3
4
5
6
7
8
10g
11
12
13
14
15
16
17
18
19
20


Warner Valley Road
from past the blind curve
to the lift station
Debris Flow Channel
New Service Area
Day Use Trailhead
Campground
21
22
23
24
25
26
27
28
29
30
31
31a
32
33
34
35
Legend
culverts_ProjectCopy
edge of day use area
edge of DB
wetland areas
500 Feet
0
250
500
N


Warner Valley Road
Drakesbad area
N
250 125 0 250 Feet
Legend
culverts_ProjectCopy
New culvert location
Water tank location
New water tank road
Old water tank road
wetland areas
edge of DB
Drakesbad
Water Tank
Water Tank Road
36
38
37
40
42
41
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61a
61
63

APPENDIX B

Biological Resources

COMMON AND SCIENTIFIC NAMES OF PLANTS AND ANIMALS REFERRED TO IN THIS ENVIRONMENTAL IMPACT STATEMENT

PLANTS

Common Name	Scientific Name
alder	*Alnus incana* ssp. *tenuifolia*
aspen	*Populus tremuloides*
incense cedar	*Calocedrus decurrens*
Jeffrey pine	*Pinus jeffreyi*
lodgepole pine	*Pinus contorta*
red fir	*Abies magnifica*
sedge	*Carex* spp.
sugar pine	*Pinus lambertiana*
western white pine	*Pinus monticola*
white fir	*Abies concolor*
willow	*Salix* spp.

ANIMALS

Common Name	Scientific Name
Mammals	
beaver	*Castor canadensis*
black bear	*Ursus americana*
black-tailed deer	*Odocoileus hemionus*
bobcat	*Lynx rufus*
broad-footed mole	*Scapanus latimanus*
chipmunk	*Tamias* spp.
coyote	*Canis latrans*
deer mouse	*Peromyscus* spp.
Douglas' squirrel	*Tamiasciurus douglasii*
fringed myotis	*Myotis thysanodes*
golden-mantled ground squirrel	*Spermophilus lateralis*
hoary bat	*Lasiurus cinereus*
long-legged myotis	*Myotis volans*
montane vole	*Microtus* spp.
mountain lion	*Felis concolor*
pine marten	*Martes americana*
pocket gopher	*Thomomys monticola*
shrew	*Sorex* spp.
Sierra Nevada red fox	*Vulpes vulpes necator*
Sierra Nevada snowshoe hare	*Lepus americanus*
silver-haired bat	*Lasionycteris noctivagans*
Yuma myotis	*Myotis yumanenis*
Birds	
American dipper	*Cinclus mexicanus*
bald eagle	*Haliaeetus leucocephalus*
brown creeper	*Certhia americana*
bufflehead duck	*Bucephala albeola*
California spotted owl	*Strix occidentalis*
Cassin's finch	*Carpodacus cassinii*
common snipe	*Gallinago gallinago*
Cooper's hawk	*Accipiter cooperii*
downy woodpecker	*Picoides pubescens*
dusky flycatcher	*Empidonax oberholseri*
evening grosbeak	*Coccothraustes vespertinus*
golden eagle	*Aquila chrysaetos*
golden-crowned kinglet	*Regulus satrapa*

COMMON AND SCIENTIFIC NAMES OF PLANTS AND ANIMALS REFERRED TO IN THIS ENVIRONMENTAL IMPACT STATEMENT

ANIMALS (cont.)

Common Name	Scientific Name
Birds (cont.)	
greater sandhill crane	*Grus canadensis*
hairy woodpecker	*Picoides villosus*
Hammond's flycatcher	*Empidonax hammondii*
killdeer	*Charadrius vociferus*
Lincoln's sparrow	*Melospiza lincolnii*
Little willow flycatcher	*Empidonax traillii brewsteri*
MacGillivray's warbler	*Oporornis tolmiei*
mallard	*Anas platyrhynchos*
mountain chickadee	*Poecile gambeli*
Northern goshawk	*Accipiter gentilis*
olive-sided flycatcher	*Contopus cooperi*
orange-crowned warbler	*Vermivora celata*
pileated woodpecker	*Dryocopus pileatus*
red-breasted sapsucker	*Sphyrapicus ruber*
red-tailed hawk	*Buteo jamaicensis*
rufous hummingbird	*Selasphorous rufus*
sharp-shinned hawk	*Accipiter striatus*
song sparrow	*Melospiza melodia*
spotted sandpiper	*Actitis macularia*
Steller's jay	*Cyanocitta stelleri*
Vaux's Swift	*Chaetura vauxi*
warbling vireo	*Vireo gilvus*
western tanager	*Piranga ludoviciana*
white-headed woodpecker	*Picoides albolarvatus*
Wilson's warbler	*Wilsonia pusilla*
yellow warbler	*Dendroica petechia*
Fish	
Brook trout	*Salvelinus fontinalis*
Pacific lamprey	*Lampetra tridentata*

TABLE B-1
SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF WARNER VALLEY COMPREHENSIVE SITE PLAN

Common Name ***Scientific Name***	**Listing Status USFWS/ CDFG/ CNPS/NPS**	**General Habitat**	**Potential for Species Occurrence Within Project Area of Impact**
SPECIES LISTED OR PROPOSED FOR LISTING			
Animals			
Invertebrates			
Shasta crayfish *Pacifastacus fortis*	FE/CE	In Pit River, Fall River, and Hat Creek drainages in Shasta County. Cool, clear, spring-fed lakes, rivers and streams, near spring inflow source. Slow to moderately flowing waters. Require volcanic rock rubble.	**Low.** All known occurrences of the species occur north of Cassel, CA. Not observed in aquatic habitat surveys conducted in Lassen Volcanic National Park.
Fish			
Delta smelt *Hypomesus transpacificus*	FT/CT	Occur in the Sacramento River up to Sacramento, the Mokelumne River system, the Cache Slough Region, the Delta and the Montezuma Slough area. .	**Low**. Located in the Sacramento – San Joaquin delta; recorded occurrences in Sacramento or Solano counties (CDFG, 2008). Not observed in aquatic habitat surveys conducted in Lassen Volcanic National Park.
Central Valley steelhead *Oncorhynchus mykiss* Critical Habitat designated	FT/--	All steelhead naturally spawned in the Sacramento and San Joaquin rivers and their tributaries.	**Low**. Populations in the Sacramento – San Joaquin delta and their tributaries. Not observed in aquatic habitat surveys conducted in Lassen Volcanic National Park.
winter-run Chinook salmon, Sacramento River *Oncorhynchus tshawytscha*	FE/CE	Spawns in Sacramento River but not its tributaries; requires clean gravel beds in cold water for spawning. Enters river in early winter months.	**Low**. Spawns below Keswick Dam at Lake Shasta, east of Lassen National Park. Not observed in aquatic habitat surveys conducted in Lassen Volcanic National Park.
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha* Critical Habitat designated	FT/CT	Found in Sacramento River and its tributaries. Enters river Feb-June to spawn.	**Low**. Range extends up to Redding, but does not reach as far east as Lassen National Park. Not observed in aquatic habitat surveys conducted in Lassen Volcanic National Park.
Amphibians			
California red-legged frog *Rana aurora draytonii*	FT/--	Breeds in stock ponds, pools, and slow-moving streams with emergent vegetation. Aestivates in upland areas in other animal burrows.	**Low**. Project area outside current and historic range of California red-legged frog (FWS, 2002). Not observed in aquatic habitat surveys conducted in Lassen Volcanic National Park.

TABLE B-1 (Continued)
SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF WARNER VALLEY COMPREHENSIVE SITE PLAN

Common Name *Scientific Name*	**Listing Status USFWS/ CDFG/ CNPS/NPS**	**General Habitat**	**Potential for Species Occurrence Within Project Area of Impact**
SPECIES LISTED OR PROPOSED FOR LISTING (cont.)			
Animals (cont.)			
Birds			
bald eagle *Haliaeetus leucocephalus*	FD/CE/NPS	Forage over open water and nest in trees near larger waterbodies with fish.	**Low.** Project area offers only marginal nesting habitat for species and only one nesting pair is known to occur in the Park. May occasionally occur in the project area as a transient. Species delisted but NPS still considers a special-status species.
greater sandhill crane *Grus canadensis tabida*	--/CT	Winters in central valley, nests in wetland areas in Northeastern California. Preferable nesting site are in grain fields less than four miles from the nearest body of water.	**Moderate**. Breeding pair located several miles southwest of project area at Willow Lake. Potential habitat exists in wet meadows of project area and the species has been documented in Warner Valley.
willow flycatcher *Empidonax traillii*	--/CE	Nests and forages in low, dense willow thickets near the edge of wet meadows or ponds.	**High**. Robust breeding population identified in the Warner Valley Wildlife Area in 1996 and 2004 (CDFG, 2008).
Mammals			
Pacific fisher *Martes pennati (pacifica)*	FC/--	Intermediate to large tree stages of coniferous forests and deciduous riparian areas with high percent canopy closure.	**Low.** This species is thought to be extirpated from Lassen Volcanic National Park and typically avoid areas with human activity and development.
Sierra Nevada red fox *Vulpes vulpes necator*	--/CT	Prefer forest habitats interspersed with meadows of fell-fields. Uses rocky or densely-vegetated areas for cover.	**Moderate**. Sighted within Lassen National Park in many areas north of the Warner Valley; meadow habitat present in project area.
OTHER SPECIES OF CONCERN			
Animals			
Fish			
Central valley fall/late fall-run chinook salmon *Onchorhynchus tshawytscha*	--/CSC	Spawn in the Sacramento river and its tributaries; enters river between July-April and spawns between October and February	**Low**. Range extends up to Redding, but does not reach as far east as Lassen National Park.
Amphibians			
Cascades frog *Rana cascadae*	--/CSC	In mountain lakes, streams or ponds in meadows, and in open forests. Requires standing water to breed and hibernates in mud at bottom of lakes and ponds.	**Low**. Historical record in Warner Valley (CDFG, 2008), Dream Lake and riparian habitat along Hot Springs Creek could support populations of Cascades frog. However, 2004 surveys found the species at only 3 sites within the Park and NPS believes the species is close to extirpation in the region.

TABLE B-1 (Continued)
SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF WARNER VALLEY COMPREHENSIVE SITE PLAN

Common Name ***Scientific Name***	**Listing Status USFWS/ CDFG/ CNPS/NPS**	**General Habitat**	**Potential for Species Occurrence Within Project Area of Impact**
		OTHER SPECIES OF CONCERN (cont.)	
Animals (cont.)			
Reptiles			
Northwestern pond turtle *Emmys* (= *Clemmys) marmorata marmorata*	--/CSC	Freshwater ponds and slow streams edged with sandy soils for laying eggs.	**Low.** Potentially suitable aquatic habitat available in Dream Lake and the species is documented historically from the Manzanita and Reflection Lake areas. However, there have been no recent sightings of this species in Lassen Volcanic National Park.
Birds			
northern goshawk *Accipiter gentilis*	--/CSC	Found using old nests within and around conifer forests; often on red fir, pine, and aspen trees.	**Moderate**. Nesting sites in red fir trees along Rice Creek less than 5 miles away; similar creek and vegetation habitat to project area.
Vaux's swift *Chaetura vauxi*	--/--/NPS	Forage for insects over rivers and lakes. Requires hollow trees and snags for nesting.	**Moderate.** Suitable habitat for the species occurs within and adjacent to the project area.
American dipper *Cinclus mexicanus*	--/--/NPS	Forage in clear, fast moving water. Associated with rivers and streams with rocky shores and bottoms. Nests built close to fast moving water, on crevice, cliff, or under a bridge.	**High.** Potentially suitable habitat occurs in Hot Springs Creek within the project area. Documented in Drakesbad Meadow mist-net surveys.
Yellow warbler *Dendroica petechia*	--/CSC	Nest in shrubby growth by swamps and watercourses, in wet scrub, tree foliage, gardens, shrubberies and berry patches.	**High.** Young of the year and adults documented in mist net efforts at Drakesbad Meadow sites 2000-2004.
Prairie falcon *Falco mexicanus*	--/--/NPS	Inhabit open, dry terrain and nests on covered cliff ledges.	**Low.** There are only historical breeding records for Lassen Volcanic National Park. No suitable breeding habitat occurs within the project area.
Rufous hummingbird *Selalsphorus sasin*	--/--/NPS	Frequent scrub and riparian areas from the California coast to the mountains.	**High.** While the species does not breed within Lassen Volcanic National Park, high numbers of dispersing juveniles are recorded annually using riparian habitat in Drakesbad Meadow.
California spotted owl *Strix occidentalis occidentalis*	--/--/NPS	Associated with multi-storied coniferous forests with greater than 70% canopy cover. Use trees larger than 30 inches in diameter for nesting.	**Moderate.** There are four nesting pairs in Lassen Volcanic National Park. A non-breeding pair has been documented in Warner Valley.

TABLE B-1 (Continued)
SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF WARNER VALLEY COMPREHENSIVE SITE PLAN

Common Name ***Scientific Name***	**Listing Status USFWS/ CDFG/ CNPS/NPS**	**General Habitat**	**Potential for Species Occurrence Within Project Area of Impact**
		OTHER SPECIES OF CONCERN (cont.)	
Animals (cont.)			
Mammals			
silver-haired bat *Laysionycteris noctivagans*	--/NPS	Found in montane forest areas; roosts in hollow trees underneath bark or in woodpecker holes. Feeds over nearby open water, such as rivers, lakes, and ponds	**Moderate**. Open water and forested habitat exists in project area; present along nearby open water like King's Creek and Willow Lake.
hoary bat *Lasiurus cinereus*	--/NPS	In open habitats or patchy habitat mosaics with cover for nesting and edges for foraging.	**Moderate**. Potential habitat areas like forest edges adjacent to open meadows exist in project area.
Sierra Nevada snowshoe hare *Lepus americanus tahoensis*	--/CSC/NPS	Inhabit thickets of brush, conifers, and deciduous riparian vegetation	**Moderate.** Known to occur in Lassen Volcanic National Park. Common but seldom seen, may occur in suitable habitat in and around Drakesbad Meadow.
fringed myotis *Myotis thysanodes*	--/--/NPS	Nests in a variety of habitats in crevices, buildings, caves, or mines. Optimal habitat includes valley hardwood, conifer hardwood, or juniper areas.	**Moderate**. Various buildings and hardwood conifer species could provide nesting habitat, and individuals could forage in open areas over marsh.
long-legged myotis *Myotis volans*	--/--/NPS	In woodland and forest habitats; roost in tree limbs during the day and caves and mines during at night. Nursery colonies are often in hollow trees.	**Moderate**. Habitat over meadow could be used for foraging; A 2002 sighting was in the upper meadow of the park, which is a similar habitat (CDFG, 2008).
Yuma myotis *Myotis yumanensis*	--/--/NPS	Nests in mines, caves, and other crevices; forages over water.	**Moderate**. Various buildings and hardwood conifer species could provide nesting habitat, and individuals could forage in open areas over marsh.
gray-headed pika *Ochotona princeps schisticepts*	--/NPS	Often found in talus fields above the tree line, but prefers talus-meadow interface.	**Low**. Historical record in Warner Valley (CDFG, 2008) from 1920's, preferred habitat not present in project area.
Sierra marten *Martes americana sierrae*	--/--/NPS	In evergreen forests with mixed-aged stands and greater than 40% crown closure; requires snags and tree cavities for nesting.	**Low**. Requires expansive densely-forested areas; much of Warner Valley is open meadow or riparian habitat. Shows a preference for old growth conifers and snags.
American badger *Taxidea taxus*	--/CSC	Resides in burrows in dry, open shrubland and forest areas with friable soils.	**Low**. Historical record in Warner Valley (CDFG, 2008); suitable burrowing soils and open foraging areas are not present in entirety of project area.

TABLE B-1 (Continued)
SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF WARNER VALLEY COMPREHENSIVE SITE PLAN

Common Name ***Scientific Name***	**Listing Status USFWS/ CDFG/ CNPS/NPS**	**General Habitat**	**Potential for Species Occurrence Within Project Area of Impact**
		OTHER SPECIES OF CONCERN (cont.)	
Plants			
upswept moonwort *Botrychium ascendens*	--/--/2.3	Along streams in lower montane coniferous forests and meadows and seeps	**Moderate**. Known population several miles southeast near Domingo Lake (CDFG, 2008).
mingan moonwort *Botrychium minganense*	--/--/2.2	On creekbanks in upper and lower montane coniferous forests, bogs and fens	**Moderate**. Known population several miles southeast near Domingo Lake (CDFG, 2008).
western goblin *Botrychium montanum*	--/--/2.1	Along streams in upper and lower montane coniferous forests, bogs and fens	**Moderate**. Known population several miles southeast near Domingo Lake (CDFG, 2008).
northwestern moonwort *Botrychium pinnatum*	--/--/2.3	Upper and lower montane coniferous forests, bogs and fens; along creekbanks.	**Moderate**. Population along Domingo springs southwest of Domingo Lake. (CDFG, 2008).
Bruchia moss *Bruchia bolanderi*	--/--/2.2	Damp and often disturbed soils in lower and upper montane coniferous forest, meadows and seeps	**High.** Documented as occurring at the southeast Ranger station of Lassen Volcanic National park.
wooly-fruited sedge *Carex lasocarpa*	--/--/2.3	Present in bogs and fens as well as marshes and swamps	**Moderate**. Populations located at several lakes to the southeast of the project area.
mud sedge *Carex limosa*	--/--/2.3	In upper montane forests as well as bogs, fens, marshes, and swamps. Grows on floating bogs, soggy meadows, and at edges of lakes.	**High**. Present east of Drakesbad in Warner Valley near Kelly Camp, also at Willow Lake.
English sundew *Drosera anglica*	--/--/2.3	In bogs and fens as well as meadows and seeps.	**Moderate**. Present in Domingo lake, Willow Lake, and Little Willow lake, all southeast of Warner Valley.
marsh willowherb *Epilobium plaustre*	--/--/2.3	In bogs and fens as well as meadows and seeps.	**Moderate**. Present near Warner Valley in boggy areas of Willow Lake.
snow fleabane daisy *Erigeron nivalis*	--/--/2.3	Found in alpine boulder and rock fields or rocky volcanic areas, subalpine coniferous forests, and meadows and seeps.	**Low**. On slopes of Lassen and surrounding higher elevation areas in predominantly rocky habitats.
tall alpine aster *Oreostemma elatum*	--/--/1B.2	Present in upper montane coniferous forests, bogs and fens, and meadows and seeps.	**Moderate**. Has been located in similar habitat areas west of the Warner Valley.
rayless mountain ragwort *Packera indecora*	--/--/2.2	Found in meadows and seeps.	**Low**. No known occurrences in meadow habitats near project area.
white-stemmed pondweed *Potamogeton praelongus*	--/--/2.3	Found in marshes and swamps, deep water lakes.	**Moderate**. Known occurrence in deeper areas of Willow lake; may occur at Dream Lake within the project area.

TABLE B-1 (Continued)
SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF WARNER VALLEY COMPREHENSIVE SITE PLAN

Common Name ***Scientific Name***	**Listing Status USFWS/ CDFG/ CNPS/NPS**	**General Habitat**	**Potential for Species Occurrence Within Project Area of Impact**
		OTHER SPECIES OF CONCERN (cont.)	
Plants (cont.)			
white-beaked rush *Rhynchospora alba*	--/--/2.2	Present in riparian areas like bogs, fen, marshes, swamps, meadows, or seeps.	**Moderate**. Present on floating sphagnum bogs on Willow Lake and Little Willow lake several miles southeast of project area.
American scheuchzeria *Scheuchzeria palustris* var. *americana*	--/--/2.1	In bogs and fens as well as marshes and swamps; can be around lake margins	**Moderate**. Present in both Willow and Domingo lakes several miles southeast of project area.
water bulrush *Schoenoplectus subterminalis*	--/--/2.3	In bogs and fens as well as marshes and swamps; can be around montane lake margins	**Moderate**. Present in Little Willow lake southeast of project area.
flat-leaved bladderwort *Utricularia intermedia*	--/--/2.2	In bogs and fens as well as marshes and swamps; can be around lake margins	**High**. Present at south end of Warner Valley Road in wet bog habitat, similar to habitats within Warner Valley.
cream-flowered bladderwort *Utricularia ochroleuca*	--/--/2.2	Found in meadows and seeps as well as marshes and swamps	**Moderate**. Present in marsh habitat at Willow lake, several miles southeast of the project area. May occur in Dream Lake.

STATUS CODES:

FEDERAL: (U.S. Fish and Wildlife Service)
FE = Listed as Endangered (in danger of extinction) by the Federal Government.
FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.
FC = Candidate to become a *proposed* species.
FD = Federal Delisted
NPS = Species of Park Concern
STATE: (California Department of Fish and Game)
CE = Listed as Endangered by the State of California
CT = Listed as Threatened by the State of California
CSC = California Species of Special Concern
California Native Plant Society
List 1B=Plants rare, Threatened, or Endangered in California and elsewhere
List 2= Plants rare, Threatened, or Endangered in California but more common elsewhere

An extension reflecting the level of threat to each species is appended to each rarity category as follows:
.1 – Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

References

California Department of Fish and Game (CDFG), Wildlife Habitat and Data Analysis Branch, *California Natural Diversity Database*, data request for the Mt. Harkness and Reading Peak 7.5-minute USGS topographic quadrangles. Commercial version 3.0.5, 08/31/08.

California Native Plant Society (CNPS), *Electronic Inventory of Rare and Endangered Plants of California, Version 7-06a 1-24-06*, data request for the Mt. Harkness and Reading Peak 7.5-minute USGS topographic quadrangles. Available online at: http://www.cnps.org/inventory, accessed October 3, 2008.

National Park Service (NPS), *Lassen Volcanic National Park: Summary of Monitoring Activities for 2003-2004*, April, 2005.

NPS, *Lassen Volcanic National Park Weed Management Plan and Environmental Assessment*, March 2008.

U.S. Fish and Wildlife Service (USFWS), 1995. *Sacramento-San Joaquin Delta Native Fishes Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon.

USFWS, 2002, *Recovery plan for the California red-legged frog* (*Rana aurora dratonyii*). U.S. Fish and Wildlife Service, Portland, Oregon.

USFWS. *Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Mt. Harkness and Reading Peak U.S.G.S. 7 1/2 Minute Quads*, Document Number: 081003030542, Database Last Updated: January 31, 2008, Accessed online October 3, 2008.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

October 3, 2008

Document Number: 081003030542

Subject: Species List for Warner Valley

Dear: Interested party

We are sending this official species list in response to your October 3, 2008 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be January 01, 2009.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 081003030542

Database Last Updated: January 31, 2008

Quad Lists

Listed Species

Invertebrates

Pacifastacus fortis

Shasta crayfish (E)

Fish

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Rana aurora draytonii

California red-legged frog (T)

Candidate Species

Mammals

Martes pennanti

fisher (C)

Quads Containing Listed, Proposed or Candidate Species:

MT. HARKNESS (625A)

READING PEAK (625B)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and

proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be January

01, 2009.

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
1	***Accipiter gentilis***	northern goshawk	ABNKC12060			G5	S3		SC
2	***Botrychium ascendens***	upswept moonwort	PPOPH010S0			G2G3	S1.3?	2.3	
3	***Botrychium minganense***	mingan moonwort	PPOPH010R0			G4	S1.2	2.2	
4	***Botrychium montanum***	western goblin	PPOPH010K0			G3	S1.1	2.1	
5	***Botrychium pinnatum***	northwestern moonwort	PPOPH010V0			G4?	S1.3?	2.3	
6	***Bruchia bolanderi***	Bolander's bruchia	NBMUS13010			G3	S2.2	2.2	
7	***Carex lasiocarpa***	woolly-fruited sedge	PMCYP03720			G5	S1.3?	2.3	
8	***Carex limosa***	mud sedge	PMCYP037K0			G5	S3?	2.2	
9	***Draba aureola***	golden alpine draba	PDBRA110F0			G4	S1.3	1B.3	
10	***Drosera anglica***	English sundew	PDDRO02010			G5	S2S3	2.3	
11	***Ecclisomyia bilera***	Kings Creek ecclysomyian caddisfly	IITRI12010			G1G2	S1S2		
12	***Empidonax traillii***	willow flycatcher	ABPAE33040		Endangered	G5	S1S2		
13	***Epilobium palustre***	marsh willowherb	PDONA060R0			G5	S1.3	2.3	
14	***Erigeron nivalis***	snow fleabane daisy	PDASTE1060			G4G5	S2S3	2.3	
15	***Eriogonum pyrolifolium var. pyrolifolium***	pyrola-leaved buckwheat	PDPGN084Z2			G4T4	S2.3	2.3	
16	***Grus canadensis tabida***	greater sandhill crane	ABNMK01014		Threatened	G5T4	S2		
17	***Hulsea nana***	little hulsea	PDAST4Z060			G4	S2.3	2.3	
18	***Lasionycteris noctivagans***	silver-haired bat	AMACC02010			G5	S3S4		
19	***Lasiurus cinereus***	hoary bat	AMACC05030			G5	S4?		
20	***Martes americana sierrae***	Sierra marten	AMAJF01014			G5T3T4	S3S4		
21	***Martes pennanti (pacifica) DPS***	Pacific fisher	AMAJF01021	Candidate		G5	S2S3		SC
22	***Meesia triquetra***	three-ranked hump moss	NBMUS4L020			G5	S3S4.2	4.2	
23	***Mielichhoferia tehamensis***	Lassen Peak copper moss	NBMUS4Q030			G1	S1.3	1B.3	
24	***Myotis thysanodes***	fringed myotis	AMACC01090			G4G5	S4		
25	***Myotis volans***	long-legged myotis	AMACC01110			G5	S4?		
26	***Myotis yumanensis***	Yuma myotis	AMACC01020			G5	S4?		
27	***Ochotona princeps schisticeps***	gray-headed pika	AMAEA0102H			G5T2T4	S2S4		
28	***Oreostemma elatum***	tall alpine-aster	PDASTEA020			G2Q	S2.2	1B.2	
29	***Packera indecora***	rayless mountain ragwort	PDAST8H1R0			G5	S1.2	2.2	
30	***Parapsyche extensa***	King's Creek parapsyche caddisfly	IITRI26010			GH	SH		
31	***Potamogeton praelongus***	white-stemmed pondweed	PMPOT030V0			G5	S1S2	2.3	
32	***Rana cascadae***	Cascades frog	AAABH01060			G3G4	S3		SC
33	***Rhynchospora alba***	white beaked-rush	PMCYP0N010			G5	S3.2	2.2	
34	***Scheuchzeria palustris var. americana***	American scheuchzeria	PMSCH02011			G5T5	S1.1	2.1	
35	***Schoenoplectus subterminalis***	water bulrush	PMCYP0Q1G0			G4G5	S2S3	2.3	
36	***Silene suksdorfii***	Cascade alpine campion	PDCAR0U1W0			G4	S2.3	2.3	

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
37	***Smelowskia ovalis var. congesta***	Lassen Peak smelowskia	PDBRA2D041			G5T1	S1.2	1B.2	
38	***Sphagnum Bog***	Sphagnum Bog	CTT51110CA			G3	S1.2		
39	***Stellaria obtusa***	obtuse starwort	PDCAR0X0U0			G5	S3.3	4.3	
40	***Taxidea taxus***	American badger	AMAJF04010			G5	S4		SC
41	***Utricularia intermedia***	flat-leaved bladderwort	PDLNT020A0			G5	S2.2	2.2	
42	***Utricularia ochroleuca***	cream-flowered bladderwort	PDLNT020E0			G4?	S1.2	2.2	
43	***Vulpes vulpes necator***	Sierra Nevada red fox	AMAJA03012		Threatened	G5T3	S1		

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 23 items - Fri, Oct. 3, 2008, 15:52 b

Reformat list as: Standard List - with Plant Press controls

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
Botrychium ascendens	Ophioglossaceae	perennial rhizomatous herb	Jul-Aug	•Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws)/mesic	1500 - 2285 meters	List 2.3
Botrychium minganense	Ophioglossaceae	perennial rhizomatous herb	Jul-Sep	•Bogs and fens (BgFns) •Lower montane coniferous forest (LCFrs) •Upper montane coniferous forest (UCFrs)/mesic	1455 - 2055 meters	List 2.2
Botrychium montanum	Ophioglossaceae	perennial rhizomatous herb	Jul-Sep	•Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws) •Upper montane coniferous forest (UCFrs)/mesic	1500 - 2130 meters	List 2.1
Botrychium pinnatum	Ophioglossaceae	perennial rhizomatous herb	Jul-Oct	•Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws) •Upper montane coniferous forest (UCFrs)/mesic	1770 - 2040 meters	List 2.3
Bruchia bolanderi	Bruchianceae	moss	•Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws) •Upper montane coniferous forest (UCFrs)/damp soil	1700 - 2800 meters	List 2.2	
Carex lasiocarpa	Cyperaceae	perennial rhizomatous herb	Jun-Jul	•Bogs and fens (BgFns) •Marshes and swamps (MshSw) (freshwater, lake margins)	1800 - 2100 meters	List 2.3
Carex limosa	Cyperaceae	perennial rhizomatous herb	Jun-Aug	•Bogs and fens (BgFns) •Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws) •Marshes and	1200 - 2700 meters	List 2.2

				swamps (MshSw) •Upper montane coniferous forest (UCFrs)		
Draba aureola	Brassicaceae	perennial herb	Jul-Aug	•Alpine boulder and rock field (AlpBR) •Subalpine coniferous forest (SCFrs)/serpentinite or volcanic	2000 - 3355 meters	List 1B.3
Drosera anglica	Droseraceae	perennial herb carnivorous	Jun-Sep	•Bogs and fens (BgFns) •Meadows and seeps (Medws) (mesic)	1300 - 2000 meters	List 2.3
Epilobium palustre	Onagraceae	perennial rhizomatous herb	Jul-Aug	•Bogs and fens (BgFns) •Meadows and seeps (Medws) (mesic)	2200 - 2200 meters	List 2.3
Erigeron nivalis	Asteraceae	perennial herb	Jul-Aug	•Alpine boulder and rock field (AlpBR) •Meadows and seeps (Medws) •Subalpine coniferous forest (SCFrs)/volcanic, rocky	1735 - 2900 meters	List 2.3
Hulsea nana	Asteraceae	perennial herb	Jul-Aug	•Alpine boulder and rock field (AlpBR) •Subalpine coniferous forest (SCFrs)/rocky or gravelly, volcanic	1720 - 3355 meters	List 2.3
Meesia uliginosa	Meesiaceae	moss	Oct	•Bogs and fens (BgFns) •Meadows and seeps (Medws) •Subalpine coniferous forest (SCFrs) •Upper montane coniferous forest (UCFrs)/damp soil	1300 - 2804 meters	List 2.2
Mielichhoferia tehamensis	Bryaceae	moss	•Alpine boulder and rock field (AlpBR) (volcanic, mesic, rock and soil)	2500 - 2800 meters	List 1B.3	
Oreostemma elatum	Asteraceae	perennial herb	Jun-Aug	•Bogs and fens (BgFns) •Meadows and seeps (Medws) •Upper montane coniferous forest (UCFrs)/mesic	1005 - 2100 meters	List 1B.2
Potamogeton praelongus	Potamogetonaceae	perennial rhizomatous herb aquatic	Jul-Aug	•Marshes and swamps (MshSw) (deep water, lakes)	1800 - 3000 meters	List 2.3
Rhynchospora alba	Cyperaceae	perennial rhizomatous herb	Jul-Aug	•Bogs and fens (BgFns) •Meadows and seeps (Medws) •Marshes and swamps (MshSw)	60 - 2040 meters	List 2.2

				(freshwater)		
Scheuchzeria palustris var. americana	Scheuchzeriaceae	perennial rhizomatous herb emergent	Jul-Aug	•Bogs and fens (BgFns) •Marshes and swamps (MshSw) (lake margins)	1370 - 2000 meters	List 2.1
Schoenoplectus subterminalis	Cyperaceae	perennial rhizomatous herb aquatic	Jun-Aug	•Bogs and fens (BgFns) •Marshes and swamps (MshSw) (montane lake margins)	750 - 2250 meters	List 2.3
Silene suksdorfii	Caryophyllaceae	perennial herb	Jul-Sep	•Alpine boulder and rock field (AlpBR) •Subalpine coniferous forest (SCFrs) •Upper montane coniferous forest (UCFrs)/volcanic, rocky	2355 - 3110 meters	List 2.3
Smelowskia ovalis var. congesta	Brassicaceae	perennial herb	Jul-Aug	•Alpine boulder and rock field (AlpBR)	2440 - 3100 meters	List 1B.2
Utricularia intermedia	Lentibulariaceae	perennial stoloniferous herb aquatic carnivorous	Jul-Aug	•Bogs and fens (BgFns) •Meadows and seeps (Medws) (mesic) •Marshes and swamps (MshSw) (lake margins)	1200 - 2700 meters	List 2.2
Utricularia ochroleuca	Lentibulariaceae	perennial stoloniferous herb	Jun-Jul	•Meadows and seeps (Medws) (mesic) •Marshes and swamps (MshSw) (lake margins)	1435 - 1440 meters	List 2.2

APPENDIX C

Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE NATIONAL PARK SERVICE, LASSEN VOLCANIC NATIONAL PARK,
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE WARNER VALLEY COMPREHENSIVE SITE PLAN IN LASSEN VOLCANIC NATIONAL PARK,
LASSEN COUNTY, CALIFORNIA

July 8, 2010

WHEREAS, Warner Valley (see map, Appendix A) is managed by the National Park Service (NPS) as part of Lassen Volcanic National Park (Park); and

WHEREAS, the Superintendent is the responsible agency official for purposes of compliance with Section 106 of the National Historical Preservation Act as defined in 36 CFR 800.2 and is accountable to the Regional Director for full performance of Section 106 compliance through the NPS Management Policies, and procedures for performance and program evaluation; and

WHEREAS, the Park proposes to implement a Comprehensive Site Plan for Warner Valley (the Project), to address natural and cultural resource issues, enhance educational, interpretive and recreational opportunities; improve the design and accessibility of the Warner Valley Campground; improve circulation and parking within Warner Valley; and address the appropriateness and adequacy of existing infrastructure, such as utilities and concession employee housing; and

WHEREAS, a Preferred Alternative for the Project was identified in the August 2009 Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement (DEIS) based on the analysis of environmental consequences; and

WHEREAS, the Park has determined that the Area of Potential Effect (APE) for the undertaking, as defined in 36 CFR Part 800.16(d) of the Council's regulations, is the project area as defined in the Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement (see map, Appendix B); and

WHEREAS, the Project will be implemented in phases as funding becomes available and may take numerous years to complete; and

WHEREAS, the Park will, as part of this action and in the first phase of the Project, rebuild the access road to the Drakesbad water tank (non-contributing), remove causeway material (non-contributing) in meadow and construct a boardwalk, fill in historic drainage ditches in the meadow, and remove Dream Lake Dam resulting in the drainage of Dream Lake, and restore the stream to its natural channel; and

WHEREAS, Dream Lake Dam, Dream Lake, and the meadow and associated structures (ditches and trails) are contributing features to the Drakesbad Guest Ranch Historic District listing; and

WHEREAS, the Park has determined that the undertaking will have an effect on properties included in or eligible for inclusion in the National Register of Historic Places; and

WHEREAS, the Park has determined that the removal of Dream Lake Dam and other contributing features as proposed in subsequent phases of the plan, will have a cumulative adverse effect on the Drakesbad Guest Ranch Historic District, diminishing its integrity as a historic district (36 CFR 800.5.(2)(i)); and

WHEREAS, the Park, in accordance with Section 800.2(d)(3), used the agency's procedures for public involvement under the National Environmental Policy Act (NEPA) to inform the public of the undertaking and solicit their views on historic properties and has distributed the draft Environmental Impact Statement (DEIS) to appropriate state, tribal and federal agencies and the public; and,

WHEREAS, the Park has consulted with the California State Historic Preservation Officer (SHPO) pursuant to 36 CFR part 800, the regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f); and

WHEREAS, the Park has informed the Advisory Council on Historic Preservation (Council) and invited the Council to consult on this Programmatic Agreement, and the Park has contacted the Pit River Tribe, Susanville Indian Rancheria, Greenville Indian Rancheria of Maidu Indians and Redding Rancheria to inform them of the project and determine their level of interest in the project. The Greenville Rancheria would like to be notified immediately if human remains are found during the project and would like to be kept apprised of project progression; and

WHEREAS, the Park has conducted cultural resource documentation at Drakesbad Guest Ranch Historic District including a National Register Nomination, a Cultural Landscape Report, a draft Historic Structures Report and an Archeological Overview and Assessment that included a complete survey of Warner Valley; and

WHEREAS, pursuant to 36 CFR Section 800.13, the NPS and the California SHPO have developed procedures in this Programmatic Agreement to ensure that the identification and evaluation of historic properties, assessment of effects and development of treatment and mitigation plans for unforeseen effects to previously identified historic properties and/or historic properties discovered during implementation of the Project are properly coordinated with all phases of the design and construction of the Project; and,

WHEREAS, the definitions of 36 CFR 800.16 are applicable throughout this memorandum;

NOW, THEREFORE, the NPS, California SHPO and the Council agree that the Project shall be implemented in accordance with the following stipulations in order to take into account foreseen and unforeseen future effects to historic properties.

STIPULATIONS

The NPS shall ensure that the following stipulations are carried out prior to taking any action that could have an effect on properties listed on or eligible for the National Register:

I. Project Scheduling

The schedule for Project implementation will be developed as funding becomes available and, once developed, will be coordinated with the SHPO. As a result, the stipulations in this memorandum may be carried out over a period of several years.

Appendix C contains a description of the proposed Phase 1 projects, and Appendix D contains a list of all other proposed undertakings under the preferred alternative in the Warner Valley Comprehensive Site Plan.

II. Area of Potential Effect

The APE is defined as the Warner Valley Comprehensive Plan project area (see map, Appendix B). Should revision of the APE become necessary, NPS shall notify all consulting parties to this PA, and NPS shall consult with the SHPO for concurrence on the sufficiency of the APE. If the SHPO has not

responded within 30 days of receipt of the revision, NPS may proceed by following the stipulations for evaluation and treatment of historic properties within the APE.

III. Phase I of Project

While many of the actions in the Plan are not funded and are proposed for the future, the following are planned to be implemented in the next 1 – 2 years. Detailed descriptions of the Phase I projects are in Appendix C.

1. **Drain Dream Lake, remove Dream Lake Dam and restore the natural channel**
   Heavy equipment will be used to remove the existing dam and restore the natural stream channel. Approximately 32 trees would be removed from the dam and the area restored with a channel network stabilized by log and rock step pools, a floodplain and wetlands. The dam material will be moved to the original excavation location or if needed, used as fill material for the drainage ditches in the meadow.

2. **Fill-in historic ditches in meadow**
   Drainage ditches in the meadow will be filled in to re-establish historic flow paths of ground and surface water. If trails in the meadow are flooded, an extension of the existing boardwalk system may be needed, therefore boardwalk construction may occur. Vegetation in the meadow will be managed to maintain historic views.

3. **Remove causeway material (non-contributing) in meadow and build boardwalk**
   Causeway material (22 cubic yards of soil) will be removed from the meadow and the area restored and re-planted. An 8-foot wide boardwalk will be constructed in the same location to allow natural drainage.

4. **Rebuild the access road to Drakesbad water tank (non-contributing)**
   The access road to the water tank will be rebuilt with a permeable roadbed and a narrower width. Existing culverts will be maintained for flows from upslope springs.

IIIA. Mitigation for Phase I

(1) Update the Cultural Landscape Report (CLR) and the National Register nomination to reflect changes to the Historic District within 12 months of the dam removal. The updated CLR and nomination, together with the Historic Structures Report (HSR) (in draft), will be submitted to the SHPO for review and concurrence. Updates to these documents will include treatment recommendations for remaining contributing features in the district impacted by the Phase I projects. With SHPO concurrence, the CLR and HSR will become the framework for managing the remaining contributing features within the district.

(2) HAER/HALS documentation for the Dream Lake Dam and Dream Lake will be completed prior to removal of the dam as stipulated by the NPS Regional HALS/HABS/HAER Coordinator. HAER/HALS documentation for the Drakesbad meadow and all associated structures, including historic drainage ditches, will be completed prior to the meadow restoration project implementation as stipulated by the NPS Regional HALS/HABS/HAER Coordinator. All HABS/HAER/HALS documentation completed for this project will be submitted to appropriate state and local repositories.

(3) Historic documentation will be incorporated into interpretive media and materials on the historic district prepared in consultation with qualified cultural resource staff. Any installation associated with these interpretive materials will be provided to the SHPO for review and comment. This effort will be completed within two years following the removal of Dream Lake Dam, Dream Lake and the meadow restoration.

(4) A qualified archeologist, who meets the Professional Qualification Standards as listed in 36 CFR 61, will monitor construction activities, especially those that have a potential to affect cultural resources. If previously unknown cultural resources are encountered during construction, work will be suspended and the procedures outlined in Stipulation V of this agreement will be followed.

(5) Within four years of the signing of the ROD for the Plan, a qualified oral historian, who meets the Professional Qualification Standards as listed in 36 CFR 61, in consultation with the NPS Regional Historian will conduct oral histories with Warner Valley and Drakesbad Guest Ranch stakeholders to document history of use in the project area.

IV. Process for Review for All Other Actions in the Plan DEIS

A. Future projects identified in the Plan (Appendix D) will follow the NHPA Section 106 process as outlined in 36 CFR 800 or in the 2008 NPS Servicewide Programmatic Agreement (PA).

B. Mitigation measures, determined in consultation with the SHPO, may include, depending on the undertaking:

(1) Completion of full documentation of the affected resources.

a. HAER or HALS documentation will be completed in accordance with stipulations provided by the NPS regional HABS/HAER/HALS coordinator.
b. All documentation activities, including additional archeological surveys, will be carried out in accordance with Section 112 of the National Historic Preservation Act, by architects, historians, archeologists or other professionals meeting the Secretary of the Interior's Professional Qualification standards.

(2) A qualified archeologist, following the Secretary of the Interior's standards, will monitor construction activities, especially those that have a potential to affect cultural resources.

C. If additional, previously unknown cultural resources are encountered during construction, work will be suspended and the procedures outlined in Stipulation V of this agreement will be followed.

D. Additional consultation with interested parties will be conducted as necessary.

E. Additional interpretive materials will be identified to continue to educate the public about Warner Valley and Drakesbad highlighting the cultural resources as appropriate.

V. Unanticipated Discoveries

A. If previously unidentified historic properties are identified during construction, then project implementation will cease in that area and the SHPO notified.

B. NPS, in consultation with the SHPO and other consulting parties shall evaluate the historic properties to determine if they meet the National Register criteria and shall request SHPO concurrence. The SHPO has 30 days to review and respond to the request (36 CFR 800.3(C)(4)).

C. In the event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during project implementation, work on the project will be suspended until their appropriate disposition is determined under the provisions of NAGPRA and other appropriate federal and state laws and regulations.

VI. Dispute Resolution

Should any Signatory Party to this PA object at any time to the manner in which the terms of this PA are implemented, or to any documentation prepared per and subject to the terms of this PA, the NPS will immediately notify the other Signatory Parties of the objection, request their comments on the objection within fifteen (15) days following receipt of notification, and then proceed to consult with the objecting party for no more than 30 days thereafter to resolve the objection. NPS will honor the request of any other Signatory Parties to participate in the consultation and will take any comments provided by the other Signatory Parties into account.

If at the end of the 30-day consultation period, NPS determines that the objection cannot be resolved through such consultation, NPS will forward all documentation relevant to the objection to the Council per 36 CFR §800.2(b)(2). Any comments provided by the Council within 30 calendar days after its receipt of all relevant documentation, and all other comments received, will be taken into account by NPS in reaching a final decision regarding the objection. NPS will notify all Signatory Parties and federally recognized and non-federally recognized tribal Concurring Parties in writing of its final decision within fifteen (15) calendar days after it is rendered. NPS shall have the authority to make the final decision resolving the objection.

VII. Amendment and Termination

A. Any party to this agreement may request that it be amended, whereupon the parties will consult to reach a consensus on the proposed amendment. Where no consensus can be reached, the agreement will not be amended.

B. Any signatory to this agreement may terminate it by providing thirty (30) days notice to the other parties, provided that the signatories and concurring parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

C. In the event of termination, the NPS shall comply with 36 CFR Part 800, or the Servicewide Programmatic Agreement (2008) with regard to all remaining actions under this agreement.

VIII. Documentation and Reporting Requirements

A. The NPS will prepare a management summary and report for each phase of work for the Phase I effort and the subsequent projects in the Plan individually as they are completed. These summaries will be provided to the SHPO as part of the park's annual report on Section 106 activity under the Servicewide Programmatic Agreement.

B. All archaeological reports must meet the Secretary of the Interior's "Standards and Guidelines for Archeology and Historic Preservation" and the standards for fieldwork and report writing for the state of California.

C. The NPS and the SHPO will ensure that site location information will be made available only to qualified persons in accordance with state and federal guidelines as defined in 36 CFR Part 800.11(c).

IX. Duration of this Agreement

A. The duration of this agreement shall be five years from the date of final execution.

B. Six months before the date on which the agreement will expire, the NPS shall notify the other parties of the impending expiration of the agreement. If the parties so choose, the agreement shall be extended for five additional years.

C. If the parties do not agree, the NPS shall comply with 36 CFR Part 800 or the applicable Servicewide Programmatic Agreement with regard to all remaining actions under this agreement.

X. Anti-Deficiency Act

All requirements set forth in the PA requiring expenditure of NPS funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. §1341). No obligation undertaken by NPS under the terms of this PA shall require or be interpreted to require a commitment to expend funds not appropriated for a particular purpose. If NPS cannot perform any obligation set forth in this PA because of unavailability of funds, that obligation must be renegotiated among NPS, the SHPO, and the Council.

XI. Effective Date

A. This PA shall take effect on the latest date of execution among NPS, the SHPO, and Council.

B. Execution of this PA by NPS and the SHPO and notification of the Council, and subsequent implementation of its terms, evidence that NPS has afforded the Council a reasonable opportunity to comment on the undertaking and its effects on historic properties, that NPS has taken into account the effects of the undertaking on historic properties and has satisfied its responsibilities under section 106 of the NHPA and applicable implementing regulations for all aspects of the undertaking.

SIGNATORY PARTIES

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: _____
Chairperson

NATIONAL PARK SERVICE, LASSEN VOLCANIC NATIONAL PARK

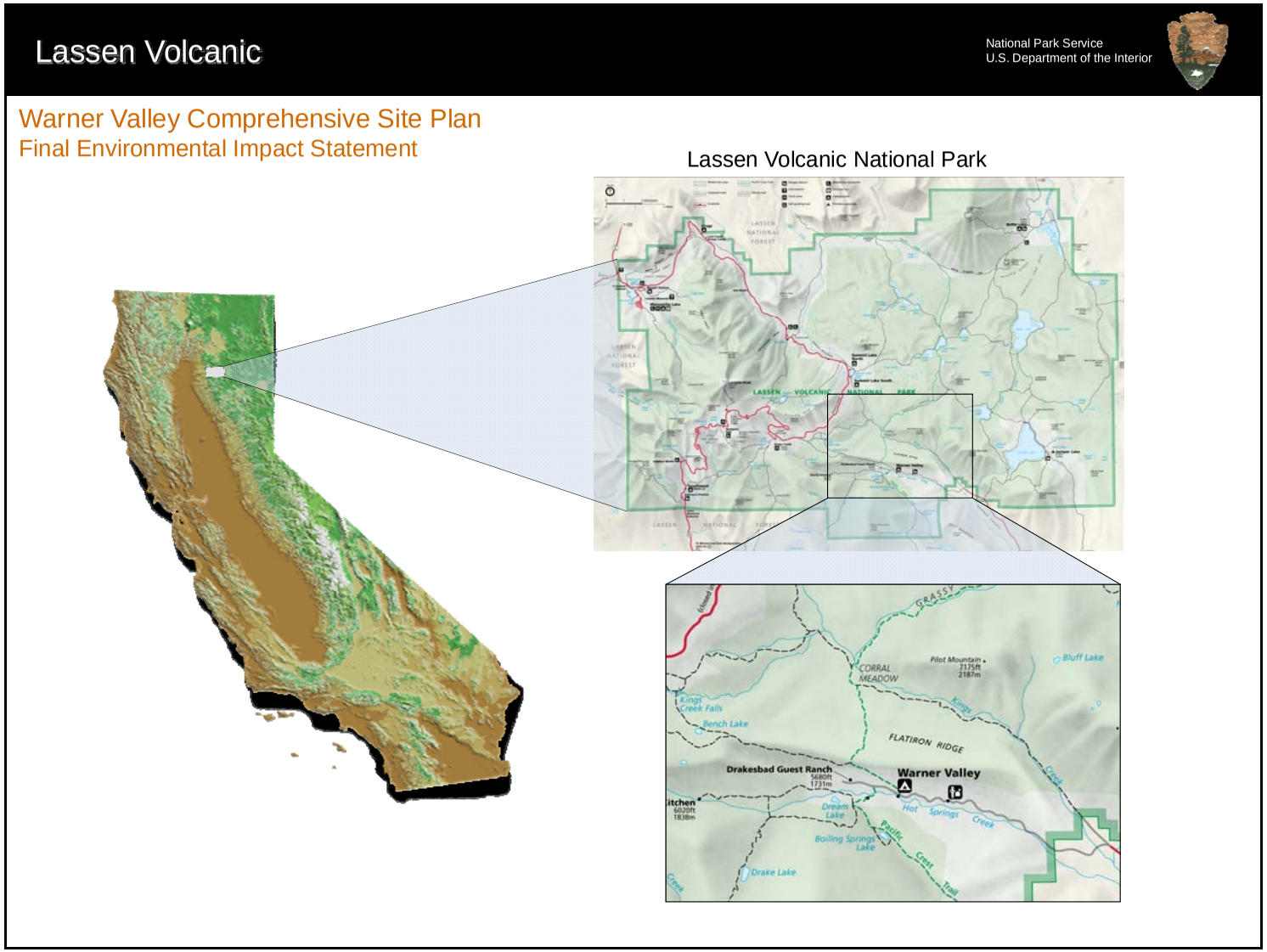
By: _____ Date: _____
Superintendent

CALIFORNIA STATE HISTORIC PRESERVATION OFFICE

By: _____ Date: _____
State Historic Preservation Officer

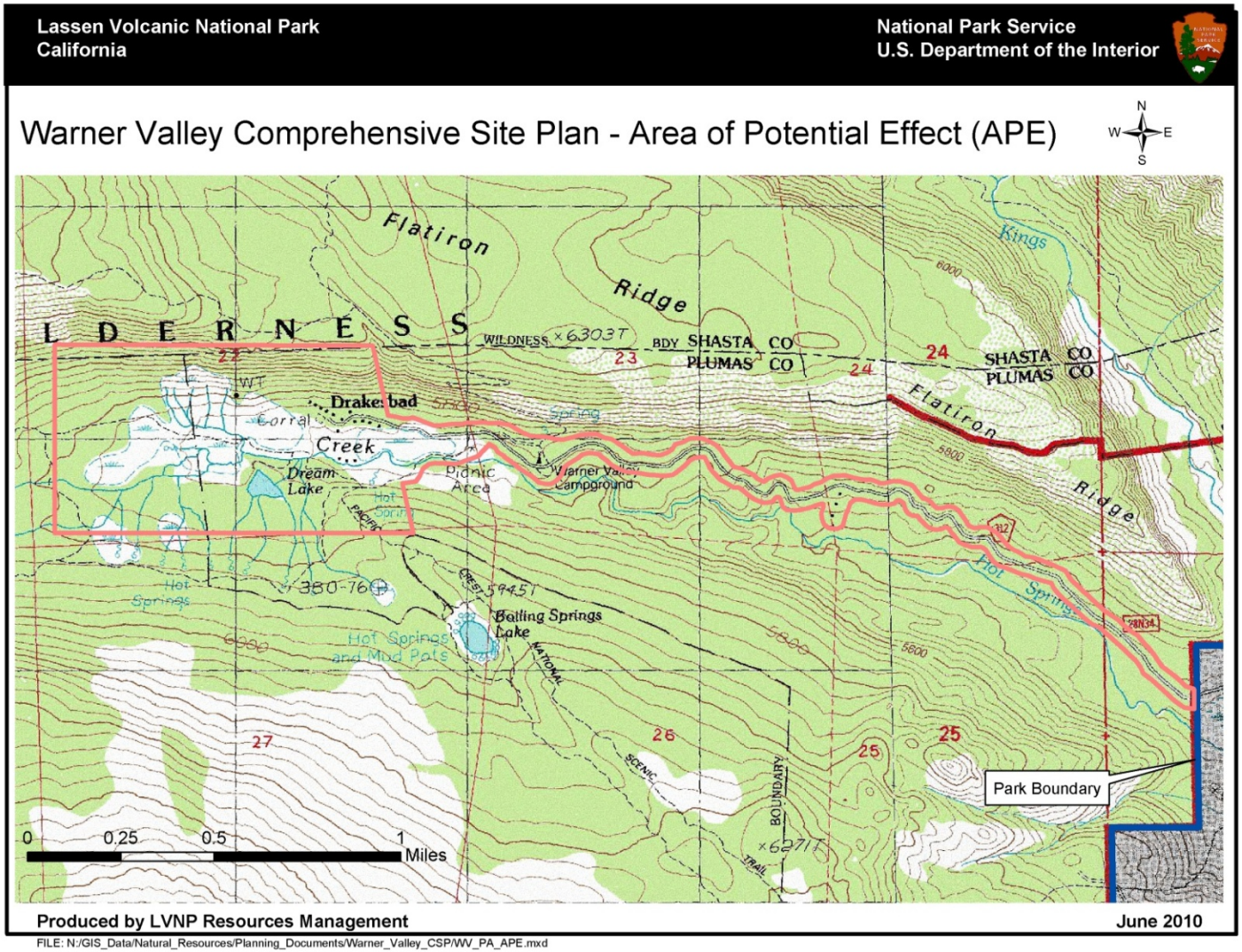
APPENDIX A

Park & Warner Valley Vicinity Map



APPENDIX B

Warner Valley Comprehensive Site Plan Area of Potential Effect



APPENDIX C

Detailed Description of Warner Valley Comprehensive Site Plan Phase I Projects

1. Drain Dream Lake, remove Dream Lake Dam and restore the natural channel

Dream Lake dam would be breached in sequential steps in the late fall when flows are lowest. A small notch would be created by removing several layers of sand bags from one of the over wash gullies that was filled using sand bags during a recent overflow event. The lower sandbags would remain to prevent uncontrolled washout. The reservoir water level would be allowed to drop to the level of the remaining sand bags and the process will be repeated several times over a 2-3 week period. Several downstream beaver dams will help catch any escaping sediment before it reaches Hot Spring Creek, and if further erosion assessments indicate a high potential for sediment transport beyond these natural beaver dams, sediment collection fencing will be installed across Hot Springs Creek.

During the subsequent winter, two pieces of machinery (within weight specifications that will allow them to cross Hot Springs Creek using the existing bridge) would be driven over the winter snow pack across the meadow, across the bridge and up the slope to the dam where they will be staged. By breaching the dam in late fall this will allow the area to drain and the dam material to dry out over the winter. In late summer/early fall the following year, the machinery would then be used to excavate and remove all remaining dam material back into the original borrow pit where it was removed from in 1931. There are two smaller borrow pits adjacent to the main pit. These were probably excavated the two times the dam failed. Most soil would only need to be moved 200 to 300 feet, with the maximum being 600 feet. All trees and vegetation will need to be removed from the dam, the push path to the borrow pits and from the three borrow sites.

If a new archeological site is found adjacent to or underneath the reservoir, or a known site has a larger extent than expected, an updated site record will be prepared and submitted to the SHPO for concurrence on a determination of eligibility before it may be covered with a geotextile fabric and then capped with material from the dam as a means of protecting the site.

The area where the dam currently sits and the reservoir bottom are naturally wet areas and some natural re-colonization by pioneer species will complement the revegetation efforts of park staff. Plants grown from seed or cuttings collected from the immediate vicinity will be planted into these disturbed areas (including the denuded area from the dam to the borrow pit and the borrow pit itself). Herbaceous plants will consist of plugs with root wads approximately 7 inches long by 1 inch in diameter. They will be planted using hand tools with 12” spacing between plugs. Bare ground between plugs will be broadcast seeded by hand with a native grass and sedge seed mix created from local sources. Willow shrub stems will be cut upstream of the former reservoir, bundled, and planted along the stream bank where it cuts through the reservoir bottom and the dam site.

This revegetation work would start with broadcast seeding and willow planting almost immediately. Plugs would be installed the following fall and then planting might continue for several summers. There is a potential for weeds to establish themselves so for the first couple years the site will be monitored and weeds controlled using techniques in the Park’s Weed Management Plan EA. The erosive force of the stream is anticipated to be minor given the low gradient at the site though flow volumes should be enough to develop new channels through the reservoir bottom.

The restoration plan will be flexible so it can adjust to either high flow events or a series of drought years.

2. Drakesbad Meadow Restoration - Fill in Ditches in Meadow

Historic ditches built to drain Drakesbad Meadow will be filled in order to restore the original hydrologic integrity to this wetland system. These ditches were primarily hand-dug and it is reasonable to assume that some of the removed material is still piled on the ditch bank. The lower 2/3 of the ditch will be filled

with the fill material from the causeway. This material will probably be delivered by trail cart or other small machine, which would cross the meadow on sheets of plywood. Then the ditch bank piles, which contain original meadow soil, will be shoveled by hand back into the ditch until the original meadow surface is reached and the natural contour is restored to ditch and bank. In most cases, this should result in disturbing an area no greater than 3 feet on either side of the existing ditch. Impacts could extend to 8 feet, but in these situations it will be only moving soil which has been previously disturbed. The area of disturbance will usually be 8 feet wide by the length of the ditch, which varies throughout the fen portion of the meadow.

All fill material used in the ditch restoration will be derived locally, in order to avoid introducing weeds. Plants grown from seed collected from the immediate vicinity will be planted into the disturbed areas. These plants will consist of plugs with root wads approximately 7 inches long by 1 inch in diameter. They will be planted using hand tools with 12" spacing between plugs. Bare ground between plugs will be broadcast seeded by hand with a native grass and sedge seed mix created from sources within the meadow. Weed infestation should be minimal but the disturbed areas will be monitored and any weeds will be promptly mitigated.

A meadow management/ ditch restoration implementation plan will be developed that could indicate a different fill material or a different species mix for restoration. These specifics will not alter the potential effect on cultural resources.

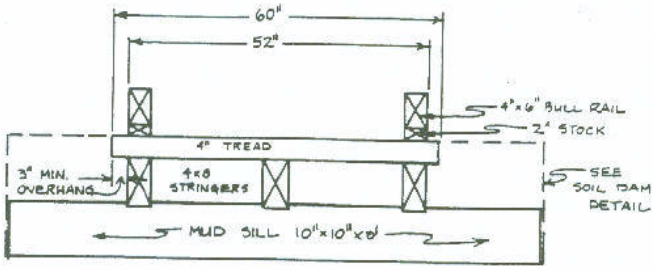
3. Remove causeway material (non-contributing) in meadow and build boardwalk

The causeway that is to be removed is currently 8-9 feet wide, 2-3 feet high and 140 feet long. It obstructs the natural flow of surface water through the meadow and is an eyesore. Two small pieces of equipment would be utilized to remove this material, one for excavating and one for hauling, each with tracks 3 to 4 feet wide so they can pass one another on the causeway. One will be similar to a mini excavator; the other will be a large-sized trail cart. Starting at the end of the causeway furthest from the Drakesbad stable, the existing causeway material will be dug up by the excavator and loaded into the dump vehicle. Material removed from the causeway will be stockpiled off site and a portion of it may be used to fill in ditches elsewhere in the meadow (meadow restoration above). The causeway material will be removed to the point where the darker meadow soil appears. The machinery should not need to leave the causeway. The plan is not to drive across the former causeway alignment once it is removed, but a few trips by a small light trail cart may be needed to construct the boardwalk.

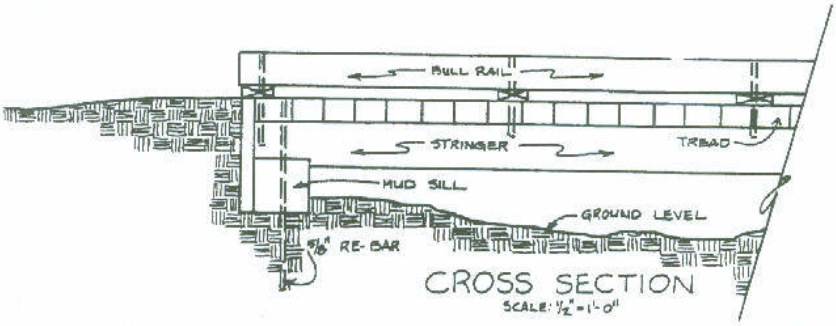
After the first 10-20 feet of causeway have been removed, the lumber to construct the boardwalk will be delivered to the site. The new boardwalk will be designed to support the weight of stock. The typical design of a walkway supported on vertical posts is therefore not practical. The posts would need to be set in concrete holes that descend 5 to 10 feet into the meadow soil. The Park is proposing a boardwalk that is supported on sill plates which sit (float) on the meadow surface (see typical equestrian puncheon diagram below). These would be rot-resistant or pressure-treated timbers approximately 10" wide, 10" thick and about 6' long. Engineering drawings are needed for exact spacing; however, initial design estimates are that a sill board would be needed at a spacing of every 3 to 6 feet. This design would not require any post hole digging. Some causeway fill might be left in the 10" strip beneath each sill plate, as it would slow the sinking of the sill plates into the meadow. Water will be able to pass under the boardwalk, and some plants would eventually establish themselves.

In wet meadows, the freeze-thaw processes should reduce compaction naturally, so that mechanical de-compaction below the original causeway surface would not be necessary. Re-vegetation of the meadow will be limited to areas disturbed by causeway removal and not covered by the new boardwalk. This will probably be a 1 to 3 foot-wide strip on either side of the new boardwalk. Plants grown from seed collected from the immediate vicinity will be planted into these disturbed areas. These plants will consist of plugs with root wads approximately 7 inches long by 1 inch in diameter. They will be planted using hand tools with 12" spacing between plugs. Bare ground between plugs will be broadcast seeded by hand with a native grass and sedge seed mix created from sources within the meadow.

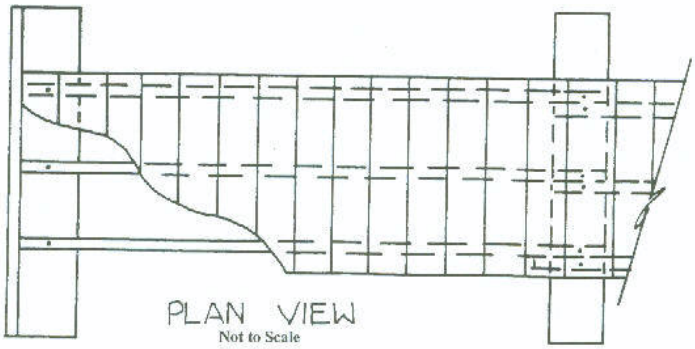
TYPICAL EQUESTRIAN PUNCHEON



END VIEW
NOT TO SCALE



CROSS SECTION
SCALE: 1/2" = 1'-0"



PLAN VIEW
Not to Scale

Figure 12.2

4. Rebuild the access road to Drakesbad water tank (non-contributing)

The access road to the water tank at Drakesbad is currently 300 feet long and 12 feet wide. It has a gravel surface atop a prism of fill material that obstructs the natural flow of water from numerous springs on the slope above the road. A ditch on the uphill side of the road carries surface water emerging from these springs away from the road surface.

Probably starting at the lower end of the road near the cabins, the road prism material will be removed by heavy equipment for approximately 20 feet. A permeable geotextile membrane will be rolled out on the excavated surface. The exact material has not been selected, but it will be about ½' thick. The prism material will then be replaced on top of the geotextile. The heavy equipment will then remove the road prism from the next 20' and the process will be repeated until the water tank is reached.

The exact sequence may differ from what is described above, but the area of disturbance will be approximately 2 feet wider than the road prism (16 feet total) and an additional area at both the top and bottom of the road segment for stockpiling fill material and parking machinery. Previously disturbed areas will be used for stockpiling and vehicle turnaround areas.

The road currently contains several culverts that channel water from the ditch above the road to the slope below the road; these are likely to be retained. They will most likely be removed and then reinstalled at the same level as the permeable geotextile but this detail may change in the final design. When the project is complete, a fresh layer of gravel will be laid on top. The culverts are desirable where spring flows exceed the geotextile's ability to transfer water.

APPENDIX D

Warner Valley Comprehensive Site Plan Future Proposed Undertakings

This list is adapted from the list of actions in the Preferred Alternative in the Warner Valley Comprehensive Site Plan Draft Environmental Impact Statement. These actions are proposed for the future as funding becomes available. These projects would follow Stipulation IV in this PA.

ENTRY TO WARNER VALLEY

Fee Station

• Move fee station to west of ranger station, at existing pull-out
• Fill area to raise grade
• Provide three parking spaces defined with rock borders
• Remove three trees at edge of road to improve visibility

Access Road to Water Tank at Ranger Station

• Remove the existing road from the drainage and discontinue use
• Construct new service road to the water tank on the ridge to the east of the existing road with dimensions of 8 feet by 130 feet with 1 to 2 foot cuts as needed for a rock road base
• Restore existing roadbed by reseeding with native plants
• Remove two small diameter white fir trees and standing dead snags

WARNER VALLEY ROAD AND GENERAL ROAD MAINTENANCE

Warner Valley Road

• Replace undersized or failing culverts and follow actions outlined in the Warner Valley Road culvert inventory, which recommends adding (6) new culverts, replacing (16) existing culverts and repairing (9) culverts• No action at the curve one-half mile west of ranger station
• Application of environmentally-approved dust suppressants in high use visitor areas (e.g. campground/day use parking zone, along some road sections, in front of the ranger station, and near Drakesbad Guest Ranch lodge/dining hall)
• Maintain two-way traffic on the existing road
• Install uniform aggregate to reduce road dust and improve stability
• Install rock headwalls [at culverts]

CAMPGROUND, TRAIL, AND DAY USE PARKING

Day Use Parking

• Eliminate existing day use parking, toilet and picnic tables and restore area to a natural meadow / wetland
• Create new day use parking area in lower campground consisting of 20 gravel parking spaces
• Retain three picnic tables, water faucet and double vault toilet at the lower campground
• Remove three trees
• No earthwork required at new parking area

Hiking Trails

• Provide uninterrupted Pacific Crest Trail connection with a new trail down slope from Warner Valley Road paralleling Hot Springs Creek, between new day use parking / old lower campground and old day use parking / trailhead at the meadow
• Install new trail by clearing brush; no tree removal
• Construct boardwalks over wetland areas

Campgrounds

• Close lower campground and convert to day use parking
• Relocate five campsites from lower campground to upper campground and designate one as an ADA-accessible site
• Add new double vault toilet across from campsite #17
• Expand loop road and close center loop
• Designate campsite #19 at entrance for camp host.
• Provide septic holding tank for camp host
• Designate parking areas with buried boulders or logs and restore areas impacted by informal parking

DRAKESBAD GUEST RANCH

Concessioner Housing and Service Center

Construct new service center outside the historic district and relocate concessioner staff housing:
• Eight double occupancy tent cabins to accommodate 16 people
• Bathhouse with apartment unit for cook
• Four single-occupancy bathrooms with showers (one ADA compliant facility), and kitchen unit
• Install hybrid power system
• Create short loop road for vehicle access
• Remove three trees during construction
• Create 13 employee parking spaces

Small Scale Features

The following features are currently located in the historic district at Drakesbad Guest Ranch:
• Relocate dumpster to new service center
• Relocate generator and enclose in a building at the service center
• Relocate and screen propane tanks and site storage at the new service center
• Construct new storage and delivery building in the service center
• Restore areas where existing small scale features are located

Bathhouse and Pool

Bathhouse renovation design would incorporate:
• ADA-accessible women's restroom (two toilets, one sink)
• ADA-accessible men's restroom (one toilet, one urinal, one sink)
• One accessible shower
• One bathtub/shower
• Six standard showers
• One massage room
• Remove four changing stalls
• Storage closet

Filter house (noncontributing structure in the historic district) is located on the pool deck. Concrete coping and deck at pool are not in keeping
with historic character

Additional modifications:
• Relocate filter house to a filter/pump room in the bathhouse
• Install photovoltaics to south side of roof
• Replace coping and deck with historically compatible material such as stone paving
• Stabilize eroding stream banks with native riparian plant species

Circulation at Drakesbad Guest Ranch
Parking
• Relocate parking to designated areas
• Designate parking with rock barriers
• Limit overnight guest parking to two cars per unit
• Designate short-term and long-term parking
• Close loop road at the Mission 66 duplexes
• Restore impacted areas

Pedestrian Circulation at Drakesbad Guest Ranch
Access Road/Path to Pool and Bathhouse
• Replace existing road/path to pool and bathhouse with a narrower profile pathway approximately 7 feet
• Replace base of path with permeable base rock
• Replace surface of path with grass cell pavers with native grasses

LAND USE
Corral
• Expand upper corral into existing 'boneyard' with a footprint of 24 feet by 40 feet and historically-compatible design
• Maintain tack shed in existing location
• Maintain lower corral as a part of cultural landscape, but no longer use
• Add bio-filtration system to southern edge of corral to mitigate effluent
• Enclose seed-free feed in a new storage structure at existing propane tank area

Volleyball Court
•Remove sand court and restore disturbed area with native plants

Dining Hall Service Area
• Re-grade dining hall service area to direct surface flow away from building, directing flows to adjacent wetland
• Provide a picnic table on a small patio as an employee break area
• Bury electrical lines

Outdoor Dining Area
Gravel surface is not visually compatible with park setting and the surface is not ADA-compliant
• Resurface patio with material that is more compatible with the site and ADA-compliant

Walls at Cabins # 9,10,11,12
Replace concrete block walls with stone walls. Cover existing exterior porch concrete block walls with stone veneer.