FINDING OF NO SIGNIFICANT IMPACT

PRINCESS DITCH TRAIL CONSTRUCTION
Whiskeytown National Recreation Area
National Park Service
May 2014

PURPOSE AND NEED FOR FEDERAL ACTION

The purpose of the proposed action is to expand recreational opportunities and provide public access to a network of trails on Bureau of Land Management (BLM) administered land adjacent to the southeast portion of the park. The NPS and BLM have been expanding the trail system that connects Whiskeytown with the BLM administered Swasey Recreation Area. The BLM has completed two sections of the Princess Ditch Trail that lead to the boundary of Whiskeytown National Recreation Area (NRA), and a short (1.9 miles) connecting trail is needed through the park to join these two new trail segments. This proposed trail is along an existing historic water ditch, the Princess Ditch, for approximately 1.4 miles and will require about 0.5 miles of newly constructed trail to connect the historic ditch to the existing park trail system.

ALTERNATIVES

The environmental assessment (EA) analyzed the proposed action and no-action alternative and their potential impacts on the environment.

Selected Action

The Selected Action Alternative is to construct the Princess Ditch Trail. The trail will allow the NPS to provide recreational opportunities in a part of the park where a water ditch once existed and that would now be available for visitors to use and to tie in with the network of trails on BLM property.

General Description of the Work

Approximately 1.9 miles of trail will be constructed, most of which will occur along the framework of the Princess Ditch which was a water-delivery system built in the mid-19th century. Much of the ditch has lost its structural integrity and is overgrown with vegetation that will be cleared for the trail to be built. To access this section of trail from the existing park trail network, approximately 0.5 miles of newly constructed trail will be created.

Standards for trail design and maintenance will follow guidelines set forth in the NPS Trails Management Handbook (NPS, 1983) with adaptations for use by Whiskeytown NRA. Sensitive, fragile, and hazardous resources such as archeological sites, rare and

sensitive plant habitat, wildlife nesting sites, and mine openings will be avoided or mitigated for trail construction. The trail did not meet the ADA elements required to make it accessible to those with disabilities, as other trails in the park have that have been constructed in the past few years.

Trail construction along the existing historic Princess Ditch will involve the removal of vegetation along the ditch and the thinning of vegetation to open the trail corridor to approximately 4-5' from the center of the ditch. Upslope from the trail, dead and down material will be removed and pile-burned within the ditch. This will be done with chainsaws and hand tools. In areas where water pools within the ditch, washed and weed-free ¾ inch angular rock may be distributed to create a more sustainable trail surface. Aside from motorized wheelbarrows, mechanized equipment (e.g., trail dozers, small excavators, etc.) will not be used within the footprint of the historic water ditch. Newly-constructed trail to access this historic structure may involve such methods as hand tools, chainsaws, and in some areas the use of a mini-dozer. To establish bridges to cross drainages, mechanized equipment such as a trail dozer or small excavator might be used, as necessary.

New trail construction from the Mule Mountain Trail to the end of the Princess Ditch will involve the installation of a 4 to 6 foot wide trail constructed at an average of 3 to 5 percent grade. Vegetation will be cleared 2 feet on each side allowing for a 8 to 10 foot wide trail corridor, and a minimum of 10 feet overhead to allow for horse-riding. Short sections of trail that exceed 10 percent tread grade will be limited to 300 feet in length and cannot exceed more than 10 percent of every mile (approximately 600 feet). No new trail construction will occur on sections that exceed 20 percent tread grade. All spoils generated during construction will be incorporated back into trail tread away from the hydrologic crossings. The trail will be out-sloped from 8 to 12 percent to pass overland flow.

Low water crossing and culverts will be installed where needed. Low-water crossings will be hardened at the exit point and along the tread with the appropriate size rock (usually 3 inch minus) protecting the trail and fill slope from erosion. If culverts are installed, hydrologic crossings will also be confined by critical dip(s) on the downhill side of the crossing or on both sides if needed. Culverts will be designed to pass a 100-year flow at 80 % capacity. The culvert inlet point will be hardened and energy dissipaters (large native rock) will be installed below the culvert. Additionally, rock walls, rolling dips and other features will be installed to reduce erosion and provide for a sustainable trail.

Bridges will be constructed over four ephemeral stream crossings and will be designed to pass a 100-year flow with 2 feet of freeboard. Bridges will be designed to accommodate multiple user groups and engineered to support stock on selected load weight, the length and the width.

Table 1: Summary of Alternatives and How Each Alternative Meets Project Objectives

Alternative Elements	Alternative A - No Action	Alternative B – Construct Ditch Trail
New Trail Constructed	The Princess Ditch Trail would not be completed, and therefore there would be no link or continuation of the trail to connect with the BLM portion of the trail or with other park trails.	The Princess Ditch Trail would be constructed, providing a multi-use trail to connect with the BLM section of this trail and with other park trails. This would provide an extensive, continuous trail that would provide an extended, relatively flat trail in an undeveloped area of the park that would be welcome by the public.
Park Operations	The Princess Ditch Trail would not be completed, and therefore there would be no impact to park operations.	The Princess Ditch Trail would be constructed and will require trail maintenance, law enforcement patrols, and invasive plant surveys and treatments in the absence of additional park funding.
Recreational Opportunities	The Princess Ditch Trail would not be completed, and there would be no change in trails available to the public or the current use of the park trail system.	The Princess Ditch Trail would be available to provide increased recreational opportunities to the public in an area of the park that has no trail running north-south from the park boundary on the south end of the park and that would also connect with the trail system already completed by the BLM.
Project Objective	Meets Project Objective?	Meets Project Objective?
Provide recreational opportunities in the southeast section of the park.	No. The lack of a trail in this section of the park would not provide the public with the opportunity to hike or ride horses on a trail that would continue the trail that currently ends at the park boundary.	Yes, a new trail would provide a continuous recreational link from BLM land into the park and connect with existing park trails. This trail is expected to receive substantial use due to the link with trails outside the park.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is determined by applying criteria identified in section 101 of the National Environmental Policy Act of 1969, as amended (NEPA), to each alternative considered. In accordance with NEPA, the environmentally preferred alternative will:

- fulfill the responsibility of each generation as trustee of the environment for succeeding generations

- assure for all generations a safe, healthful, productive, and aesthetically and culturally pleasing surrounding

- attain the widest range of beneficial uses of the environment without degradation or other undesirable and unintended consequences

- preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice

- achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities

- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources (NEPA, section 101)

The environmentally preferred alternative in this environmental assessment is the NPS preferred alternative (Alternative B). This alternative was selected based on the following criteria: (1) best fulfills criterion 1 by fulfilling the responsibilities of the National Park Service as trustee of the environment for succeeding generations by improving the visitor experience and the natural landscape; (2) best meets criterion 2 by creating safe and aesthetically pleasing recreational facilities for visitors to the new trail and to Whiskeytown NRA; (3) better addresses criterion 3 by specifying sustainability in construction of facilities (such as bridges) along the trail without compromising the environment and without degradation, risk of health or safety, or other undesirable and unintended consequences; (4) better meets criterion 4 by preserving important historic, cultural, and natural aspects of our national heritage by preserving a historic ditch and trail; (5) best meets criterion 5 by connecting with an existing trail in the park allowing recreationists more choices of routes and destinations; and (6) best meets criterion 6 by constructing a trail in which the NPS will have good access and be able to perform regular maintenance which will serve to preserve the ditch. The trail will also provide insight into a past era of park history and is likely to become a very popular trail, as it has proven to be popular with visitors to the BLM trail section. Alternative B will benefit visitor and employee health, safety, and welfare and provide the most recreational diversity, while minimizing disturbance to natural resources along the Princess Ditch Trail; therefore, Alternative B is the environmentally preferred alternative regarding aesthetic, cultural, and natural resources.

MITIGATION

Mitigation measures are presented as part of the action alternative. These actions were developed to minimize the degree and/or severity of adverse effects and would be implemented during construction of the action alternative, as needed:

- Cut vegetation along the trail will be either saved or used for mulch/erosion control material or it will be pile burned. If burned, vegetation piles will be located

10 – 20 feet away from large diameter oaks and conifers to avoid overstory tree mortality.

- During new trail construction, silt fencing will be established downslope of any work involving a trail dozer. This fencing material will be removed once the trail is compacted and established.
- Before any equipment is brought into the park, it will be pressure or steam-washed in order to remove non-native seeds. Cleaning shall consist of the removal all dirt, grease, debris, and materials that may harbor noxious weeds and their seeds. Cleaning shall occur off the project site. Examples of equipment are backhoes, tractors, loaders, excavators, dozers, bobcats, wheeled compressors, or trucks and trailers that have traveled off-road. Park staff will inspect all equipment to ensure that it is weed and seed-free.
- If equipment temporarily leaves the park boundary for work, or moves to another work site within the park, it shall be cleaned in accordance with the above procedures prior to re-entering the park or being moved back to the project site.
- Topsoil, gravel, rock, straw or hay materials shall not be imported into the park. If absolutely necessary, consultation with the park's Resource Management staff will be necessary to accommodate the trail's needs. Consultation with Resource Management staff shall occur two weeks in advance of material need, and staff will inspect source locations for the presence of invasive species.
- Large washed and weed-free angular rock may be distributed to create a more sustainable trail surface. The material type must be approved by Resource Management staff and be inspected for weed seed prior to use. To retain this material and stabilize trail tread, synthetic geo-grid reinforcement products may be considered.
- Seasonal trail closures will be considered, if sections of trail are unable to be drained without compromising the historic integrity of the ditch structure.
- After completing construction, exposed soil outside the trail footprint will be covered with local litter and native vegetation slash as soon as possible. This mulch will provide a source of seeds to reestablish native vegetation and reduce the risk of non-native seeds germinating. Ideally, the litter and duff should be collected from surrounding areas, but do not denude the collection area. Leave at least 50 percent of the material in place and don't disturb vegetation. In the absence of native vegetation, certified weed free rice straw can be used. Hay, straw, and even certified weed-free hay is not permissible.
- Minimize the area of soil disturbance.
- To minimize the amount of ground disturbance, staging and stockpiling areas will be in previously disturbed sites, away from visitor use areas to the extent possible. All staging and stockpiling areas would be returned to pre-construction conditions following construction.
- Trail construction zones will be identified and signs or fencing will be placed to prevent visitors from entering the area.

- Should construction unearth previously undiscovered cultural resources, work will be stopped in the area of any discovery and the NRA will consult with the state historic preservation officer and the Advisory Council on Historic Preservation, as necessary, according to §36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- To prevent non-native plant germination, a variety of forms of interpretive media will be utilized to educate the public on ways to prevent exotics plant species from being spread.

WHY THE SELECTED ACTION (PREFERRED ALTERNATIVE) WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined by 40 CFR 1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse and which on balance may be beneficial, but that may still have significant adverse impacts that require analysis in an environmental impact statement: No major adverse or beneficial impacts were identified that will require analysis in an environmental impact statement.

The primary impact topics identified in the environmental analysis and documented in the environmental assessment included the following: air quality, soundscapes, national recreation area operations, visitor use and experience, geology and soils, water resources, vegetation, and wildlife and fish. Impacts to these resources were identified at the negligible to moderate level or had positive impacts due to increased recreational opportunities.

Degree of effect on public health or safety: The selected action will have a long-term beneficial impact on the health of visitors and employees at the NRA because the construction of the trail will allow the public to recreate on a trail that connects with BLM and other park trails and help to promote a healthy living style through outdoor exercise, an effort that the NPS and BLM have collaborated on since 2008.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas: As described in the environmental assessment, historic structures, ethnographic resources, cultural resources, archeological resources, prime and unique farmlands, water resources, wetlands, floodplains, ecologically critical areas, and other unique natural areas will not be affected. The actions proposed will add minor infrastructure to an area with a historic ditch, but will not negatively impact the ditch's historical integrity.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in the National Register of Historic Places, or may

cause loss or destruction of significant scientific, cultural, or historical resources: As described in the environmental assessment, significant scientific or designated cultural and historic resources will not be affected.

Degree to which effects on the quality of the human environment are likely to be highly controversial: There were no highly controversial effects identified during either preparation of the environmental assessment or the public review period.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks: There were no highly uncertain, unique, or unknown risks identified during either preparation of the environmental assessment or the public review period.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration: The selected action neither establishes a NPS precedent for future actions with significant effects, nor represents a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant, but cumulatively significant, impacts: The selected action of the environmental assessment analyzed impacts to air quality; soundscapes; national recreation area operations; visitor use and experience; geologic resources and soils; water resources; vegetation; sensitive plant species; invasive plant species; wildlife and fish; and cultural resources. As described in the environmental assessment, cumulative impacts were determined by combining the impacts of the preferred alternative with other past, present, and reasonably foreseeable future actions. There are no projected future actions that will contribute to cumulative effects.

Degree of effect on soils; biological resources; and threatened, endangered, and species of special concern; coastal and marine resources; or water quality: The proposed action will have no effect on soils; biological resources; threatened, endangered, or special concern species; coastal and marine resources; or water quality. The above impact topics relevant to the project area were addressed in the environmental assessment.

Whether the action threatens a violation of federal, state, or local environmental protection laws: The selected action violates no federal, state, or local environmental protection laws.

PUBLIC INVOLVEMENT AND AGENCY CONSULTATION

Scoping

A press release initiating public scoping and describing the proposed action was issued on February 15, 2012. A public meeting was held on February 29, 2012, at Redding

City Hall. Approximately 60 people attended. Comments were solicited during a public scoping period that ended on March 30, 2012. Seventy comments were received during the public scoping period. Nearly all were supportive of new trails in the park. Sixteen comments expressed support for making the Princess Ditch trail construction the park's highest priority trail project. No comments were received in opposition of the proposed Princess Ditch trail. No controversial issues emerged during the scoping process.

Additionally, the BLM consulted with the NPS, Redding Rancheria, Shasta County, McConnell Foundation, Redding Foundation, local residents and the Redding Mountain Bike Club as part of their NEPA analysis for the Princess Ditch Trail construction. The NPS conducted its own scoping session because the Princess Ditch Trail was one of several park trails that were being proposed as new trails, even though there had been close coordination with the BLM with regards to their planning efforts.

The Redding Rancheria was contacted to determine if there were any ethnographic resources in the project area or if they had any other concerns related to the proposed protect. They did not respond with any concerns. The NPS completed Section 106 consultation with the State Historic Preservation Office (SHPO) on March 24, 1014. The SHPO concurred that the Princess Ditch is eligible for the National Register of Historic Places and that a Finding of No Adverse Effect is appropriate for the undertaking as described.

Whiskeytown National Recreation Area falls within the area covered under the Northwest Forest Plan. Under the streamlined consultation process, agency actions that would result in a "no effect" determination do not require further section 7 consultation with the U.S. Fish and Wildlife Service. Therefore, consultation with the U.S. Fish and Wildlife Service was not initiated.

PUBLIC COMMENT ON ENVIRONMENTAL ASSESSMENT

This environmental assessment/assessment of effect was available for formal public and agency review for a 30-day review period from March 19 through April 19, 2014. The environmental assessment was available on the Internet at the Planning, Environment and Public Comment (PEPC) website: http://parkplanning.nps.gov/whis and three printed copies were made available at the Whiskeytown visitor center, park headquarters, and the Redding branch of Shasta County Libraries. The review period was publicized in the local newspaper, The Record Searchlight, which announced the environmental assessment was available for review on March 21, 2014.

Whiskeytown National Recreation Area received twenty six pieces of correspondence during the review period. Twenty three of the comments indicated support of the selected alternative of constructing the Princess Ditch Trail. One commenter was concerned about the traffic impact and noise generated by trail users for residents along Muletown Road. A comment was received that while this trail was described as multi-use, there was no mentioned of mountain biking in the environmental assessment. A

final commenter asked why there was no mentioned of trailhead access or amenities in the planning document.

All comments were non-substantive in nature. Substantive comments are those that:

- question, with reasonable basis, the accuracy of the information in the environmental assessment
- question, with reasonable basis, the adequacy of the environmental analyses
- present reasonable alternatives or key elements of alternatives other than those presented in the environmental assessment
- provide information that could lead to changes or revisions in the proposal

The comments concerning an increase in noise along Muletown Road relate to the trail segments and parking areas administered by the Bureau of Land Management. The National Park Service does not believe the creation of the Princess Ditch Trail connection will cause an appreciable increase in traffic or noise along Muletown Road or the BLM-maintained portion of the trail. The availability of this trail segment may serve to slightly reduce any congestion and resulting noise on the BLM segments by providing an alternative trail route and starting location in the park, potentially distributing use. The National Park Service will forward the comment on to the BLM as the concerns primarily relate to management of BLM trails and parking areas.

The trail is being designed as a multi-use trail to support hikers and horses. Designating the trail for bicycle use was beyond the scope of analysis at this time. While mountain biking has historically taken place within Whiskeytown National Recreation Area, no park trails have been officially designated as open to bicycle use as required by regulations. Whiskeytown National Recreation Area is currently developing a Trails Management Plan that will evaluate all park trails, including the Princess Ditch Trail, and decide whether or not bicycle use is appropriate. This process will involve detailed trail assessments and extensive public involvement.

No new trailheads or trailhead amenities will be created as a result of this project. The Princess Ditch is a connector trail that links two existing trails with already established trailheads. Visitors will utilize existing trailheads to access this new trail segment. Trailhead parking and amenities at both the NPS and BLM access points is anticipated to be adequate. Should future demand necessitate additional parking, this development would be addressed in a separate planning process. The Trails Management Plan will involve a comprehensive evaluation of the park trail system and is a suitable planning process to determine future needs.

CONCLUSION

The selected action does not constitute an action that normally requires preparation of an environmental impact statement. The selected action will not have a major impact on the human environment. Negative environmental impacts that could occur are

considered short term and negligible to minor in intensity, and long term and negligible to moderate in intensity. Beneficial environmental impacts that could occur are considered long term and negligible to minor in intensity. Mitigation measures will be incorporated into the selected action (preferred alternative) to ensure there are no significant impacts. There are no foreseen significant adverse impacts on natural or cultural resources, public health and safety, NRA management, or other unique characteristics of the area and region. Long-term negligible to minor beneficial impacts to NRA operations and visitor health and safety will result from the selected action. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the selected action will not violate any federal, state, or local environmental protection laws.

Based on the foregoing, it has been determined that an environmental impact statement is not required for this project and, thus, will not be prepared.

Recommended:

Colleen J Blexham, Acting 5/6/2014

Jim Milestone, Superintendent Whiskeytown NRA Date

Approved:

Patricia L. Neubacher 5/12/14

Christine S. Lehnertz, Pacific West Regional Director Date

for

Attachment 1

DETERMINATION OF NON-IMPAIRMENT

PRINCESS DITCH TRAIL CONSTRUCTION

While Congress has given the National Park Service (NPS) management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the NPS must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This cornerstone of the Organic Act establishes the primary responsibility of the NPS, to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The impairment of park resources and values may not be allowed by the NPS unless directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.

The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that 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, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may, but would not necessarily, lead to impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

National Park Service's *Management Policies 2006* require analysis of potential effects to determine whether or not actions would impair park resources. The park resources and values that are subject to the no-impairment standard include:

- the parks 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; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the parks role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Based on the parks enabling legislation of November 8, 1965, the purposes of the Whiskeytown-Shasta-Trinity National Recreation Area are to:

- to provide, in a manner coordinated with the other purposes of the Central Valley project, for the public outdoor recreation use and enjoyment of the Whiskeytown, Shasta, Clair Engle, and Lewiston reservoirs and surrounding lands in the State of California by present and future generations, and
- the conservation of scenic, scientific, historic, and other values contributing to public enjoyment of such lands and waters.

Based on the requirements of the 1916 Organic Act, and in consideration of the Whiskeytown National Recreation Area (NRA) General Management Plan, topics from the environmental assessment (EA) that were evaluated for potential impairment due to implementing the Selected Action include air quality, soundscapes, geological resources and soils, water resources, sensitive plant species, invasive plant species, wildlife and fish, and cultural resources. Non-resource topics such as National Recreation Area operations and visitor use and experience are not subject to impairment determinations.

NATURAL RESOURCE TOPICS

Air Quality

Whiskeytown is located in the Sacramento Valley Air Basin. The Shasta County Air Quality Management District oversees air quality matters in the Whiskeytown area. Sections 160-169 of the Clean Air Act (CAA) established the Prevention of Significant Deterioration program to preserve, protect, and enhance air quality in regions of the United States that are of special national or regional natural, recreational, scenic, or historic value. Under these provisions Congress instituted a classification approach for controlling the increase of air pollution based on existing clean air condition. Class I areas are afforded the greatest degree of air quality protection against industrial growth. Class II areas allow for moderate deterioration, associated with well-managed growth. Class III areas allow the greatest amount of deterioration. Whiskeytown NRA is a Class II air quality area. Air quality-related concerns at Whiskeytown include visibility, vegetation, and visitor and employee health.

Under the Selected Action, trail construction would temporarily contribute negligible amounts of fugitive dust emissions and vehicle and equipment exhaust in the immediate vicinity of the construction areas. It is unlikely that any fugitive dust would impact park operations or visitor experience as work will occur in a very small area of the park.

Soundscapes

Natural soundscapes in parks are often evaluated in terms of a human need for quiet and solitude. Research in acoustics and natural sound demonstrates that natural sound is an important ecological attribute. Impacts to natural sound not only affect the human environment but can threaten the underpinnings of park ecology.

Under the Selected Action, a slight increase in ambient noise would occur during the installation of the Princess Ditch Trail. Any sounds generated from construction would be temporary, lasting only as long as the construction activity is generating the sounds and would have a negligible impact on the park soundscapes limited to the immediate vicinity of the proposed area of construction. There is also expected to be an increase in noise from hikers utilizing the trail system. Trail is expected to occur primarily during the daylight hours. The proposed trail is located adjacent to other park trails and Muletown road, and is expected to have a negligible, long-term adverse impact through the addition of human cause sound in the trail corridor.

Geologic Resources and Soils

Whiskeytown NRA is located in the Eastern Klamath Metamorphic Belt of the Klamath Geologic Province. The five major exposed bedrock units range in age from the very old lower Devonian Copley greenstone to the relatively younger lower Cretaceous Shasta Bally batholith. Also present within Whiskeytown National Recreation Area are several dike intrusions ranging in composition from aplite to dacite. All Paleozoic units are folded, jointed, and thrust faulted and/or normal faulted. Unconsolidated Quaternary units expressed as colluvial and alluvial deposits locally overlie all units.

The soils within the NRA are typical of soil formation within the Eastern Klamath Metamorphic Belt of the Klamath Geologic Province with the exception of soils formed on the Shasta Bally batholith. Generally, Whiskeytown soils can be described according to parent material, elevation, slope, and vegetation cover. The general Great Soil Groups in Whiskeytown NRA as defined by the Natural Resource Conservation Service (formerly the Soil Conservation Service) consist of entisols, inceptisols, spodosols, alfisols, and limited mollisols. More specific soil descriptions vary depending on localized conditions.

The Selected Action includes use of the existing ditch and the construction of a short section of new trail that will connect with the Mule Mountain Pass Trail. New trails will be constructed both in the Princess Ditch and the area adjacent to the ditch, and in both of these areas impacts to geologic resources and soils include increased bedrock erosion if construction occurs beneath the soil profile. The impacts are considered to be adverse, long-term, and negligible in intensity. The techniques used in construction will reduce overall erosion of the trail and are considered to be beneficial, long-term, and minor in intensity. Overall, once the trail has stabilized after the first season of rainfall, impacts will be adverse, long-term, and minor.

Four bridges will be installed across ephemeral streams. This light impact design is consistent with most bridges in the backcountry area of Whiskeytown located in the lower drainages where periodic flooding occurs. However, the bridge abutments will be firmly established into bedrock

well above flood levels of these drainages. Impacts to geologic resources from installation of these foot bridges are considered adverse, long-term and minor in intensity.

There would be an increase in soil disturbance associated with the newly-constructed sections of trails. Soil disturbance would be most pronounced in the winter months when soils are wet and where there is standing water in the ditch due to the lack of opportunities for water to be displaced out of the ditch. This would be an adverse, long-term moderate impact to previously disturbed soils during wet periods and adverse, short-term and minor during dry periods. Mitigation measures will be taken where possible to ensure drainage of the trail without impacting the historic integrity of the ditch system.

Newly disturbed soils are susceptible to erosion and run-off after rains until a stabilizing cover of vegetation has re-grown along trail edges or a layer of duff has covered exposed soils. To reduce the potential for erosion, exposed soils on the trail tread would be lightly compacted and covered with local duff or small pieces of vegetation removed during trail construction.

Water Resources

Whiskeytown National Recreation Area is noted as a water-based recreation area with significant year-round water resources that attract many visitors. Whiskeytown Lake covers 3,220 surface acres with 240,000 acre-feet of water at full capacity. Whiskeytown Dam impounds the Clear Creek watershed on the southeast end of the recreation area and the lake is fed by seven major watersheds: Clear Creek, Brandy Creek, Crystal Creek, Boulder Creek, Mill Creek, Willow Creek, and Whiskey Creek. Approximately one mile below the dam, the major tributary to Clear Creek is Paige Boulder Creek which drains into Clear Creek. Additionally, many intermittent streams drain into Whiskeytown Lake. Water quality within the park is generally of high quality. In 2011, twenty-two sites were sampled by the National Park Service Inventory and Monitoring Program. The water chemistry results indicated overall excellent conditions. Based on Total Nitrogen, Specific Conductivity and ANC, all sites were in the EPA category "least disturbed." Watersheds on the north side of Whiskeytown National Recreation Area all have past mining activities that have impaired or have the potential to impair water quality. Base metal and gold mining inside and outside of the park boundaries has left a legacy of mine contamination problems in Willow Creek, Whiskey Creek and other smaller tributaries.

Adverse, short-term and minor effects on water quality are anticipated the Selected Action. Adverse impacts to streams or associated riparian areas from soil erosion and run-off following trail construction would be avoided or minimized by constructing trails when soils are not saturated or susceptible to erosion and run-off. The proposed trail is located away from perennial and intermittent streams. The proposed trail crosses several ephemeral streams that would be affected by trail crossings during wet periods and would require more intensive maintenance.

Bridges will be constructed across four ephemeral streams and designed to span the stream channel completely rather than being supported by piers within the active channel. Bridges will be constructed well above high water marks out of floodplains. Because the trail would be built in the spring, fall and winter months, and the ephemeral or streams may have water, the mitigation measures described previously in this document would be utilized to minimize sediment from reaching any of the creeks. This may include covering exposed soil with local litter and native vegetation slash as soon as possible. In the absence of native vegetation,

certified weed-free rice straw can be used. The new section of trail, beyond the ditch, is expected to contribute only minimally to overland water flow due to trail grade and out-sloped design. Therefore, the impacts to water quality would be adverse, short-term, and minor for the first season following trail construction. After the first season, the impacts would be adverse, long-term, and negligible.

Vegetation

Whiskeytown National Recreation Area lies at the juncture of several of northern California's physiographic regions and is one of the most floristically diverse ecological units in the western United States. The diverse plant communities gradually blend with one another in such a way that distinct boundaries are seldom observed. The patchy vegetation pattern reflects a broad range in elevation, rugged topography, diverse soil types, and history of natural and human disturbance. Most vegetation in the park was cleared or otherwise affected by historical land use practices.

For the purposes of this Determination of Non-Impairment, the diverse park habitats were grouped into the potentially affected vegetative communities present in or near portions of the proposed Princess Ditch Trail within the NRA. The communities are based on descriptions by Biek (1988) and Sawyer and Keeler-Wolf (1995), as well as the Alliance/Association system of classification developed by the Ecological Society of America as part of the U.S. National Vegetation Classification effort. The primary plant communities impacted by the Selected Action are the ponderosa pine *(Pinus ponderosa),* knobcone pine *(Pinus attenuata),* grey pine *(Pinus sabiniana*), black oak *(Quercus kelloggii)*, canyon live oak *(Quercus chrysolepis*), chaparral and riparian plant communities.

Under the Selected Action, both the new segment of trail and the trail along the historic ditch would result in direct adverse impacts to the above-mentioned plant communities. These impacts are a result of the direct removal of vegetation with chainsaws and hand tools. The trail will be routed around large trees to minimize impacts and limbs that need to be removed from large trees will be cut at the limb collar whenever possible to promote healing and reduce the long-term impacts to the trees. Impacts to vegetation will be adverse, long-term and minor in intensity due to the limited extent of the vegetation that would need to be removed to establish the trail tread and corridor. Brush and understory vegetation removed during trail construction will be piled and burned away from large diameter trees (especially oaks and pines) to avoid overstory tree mortality.

Sensitive Plant Species

An extensive floristic inventory of the park and collection of herbarium voucher specimens was initiated in 1986 by David Biek and completed with the assistance of the Shasta Chapter of the California Native Plant Society. Nine sensitive plants species have been verified within the park. Sensitive plant species are plants that are not officially listed as threatened or endangered by the State of California or the Federal Endangered Species Act, but warrant consideration and protection due to limited distribution, scarcity of individuals, or the likelihood of becoming listed as threatened or endangered. There are no known federally or state listed plant species within the project area, although blue elderberry is host to the federally-listed threatened valley elderberry longhorn beetle, and the elderberry must be protected as if it were listed.

None of the park species of special concern are known to occur in the proposed Princess Ditch Trail project area. However, there is suitable habitat for several species of concern, especially

Shasta arnica, McNab cypress, and Sanborn's onion. Park personnel and trail crew leaders will be educated about the key characteristics of such plants. If any species of concern is found, trail construction would be stopped and mitigation measures would be implemented to protect these or other plants of special concern discovered during project work.

Under the Selected Action, both the new segment of trail and the section along the historic ditch would result in direct adverse impacts to most rare plant species – if present - particularly if such species were directly removed with chainsaws and/or hand tools. However, thinning/brushing through potential Shasta arnica and Sanborn's onion habitat could have a short to long-term, negligible to minor and beneficial impact to such species, if present.

Invasive Plant Species

Within Whiskeytown National Recreation Area there are 195 known exotic plants, several of which are considered invasive and subject to eradication. The priority invasive species are: tree of heaven (*Ailanthus altissima*), giant reed (*Arundo donax*), yellow star thistle (*Centaurea solstitialis*), diffuse knapweed (*Centaurea diffusa*), spotted knapweed (*Centaurea maculosa*), puncture vine (*Tribulus terrestris*), bull thistle (*Cirsium vulgare*), Scotch broom (*Cytisus scoparius*), French broom (*Genista monspessulana*), English ivy, (*Hedera helix*), Himalayan blackberry (*Rubus armeniacus*), Spanish broom (*Spartium junceum*), moth mullein (*Verbascum blattaria*), common mullein (*Verbascum thapsus*), sock destroyer (*Torilis arvensis*),and periwinkle (*Vinca major*).

Invasive plant species known to occur at the trailheads on BLM land, as well as in this area of the park, include yellow star thistle, sock destroyer, Klamath weed (Hypericum perforatum), and barbed goatgrass (*Aegilops triuncialis*). Scotch broom, French broom, tree of heaven, bull thistle, and common mullein are also found within the general area. Within the park boundary, the infestations near the proposed Princess Ditch Trail will be treated prior to trail construction. The introduction and spread of invasive plant species is a concern in the construction of trails, as it is well-documented that these activities favor invasions by transporting propagules on contaminated equipment and materials, disturbing the soil surface, and by creating gaps in the canopy. The infestations found at trailheads outside the park boundary will undoubtedly serve as a seed source to be spread along the trail by visitors; either in dirt and mud attached to shoes, bicycle tire treads, or by horses and dogs. The trail will inevitably act as a vector of dispersal from invaded areas outside the park, to uninfested areas within the park boundary. These conditions have the potential to not only spread existing exotic plant species, but also introduce new invasive plants to the park as well.

To minimize impacts associated with invasive exotics within Whiskeytown, the trail will need to be monitored and new infestations of invasive exotic plants will need to be treated as they occur. Several mitigation measures are in place to help control the introduction and spread of invasives, which include the cleaning of equipment before it is brought into the park or moved to the site, avoiding the use of foreign materials such as weed-free hay, and cleaning the angular rock that may be used in muddy sections. Such mitigation measures have not been taken along the sections of the trail which lead up to the park boundary, which increases the likelihood of introducing and spreading invasive plants. The park will coordinate with the BLM to implement actions that reduce the spread of invasives from BLM land to park land, as well as to provide interpretive materials at the visitor center and trailheads to inform visitors of the ways invasive species are transported and the things they can do to prevent it from occurring.

The impacts from the proposed trail may be somewhat exacerbated due to the fact that the areas where additional trails are planned are impacted from historic human use and many of the areas have already been colonized by invasive plant species. The repeated ground disturbance from traffic and trail maintenance has the potential to amplify the degree of infestation, introduce new non-native and invasive species and spread to un-infested areas. Therefore, it is unlikely that these impacts can be avoided, despite mitigation measures in place. Environmental impacts to this area will likely be adverse, long-term and minor to moderate in intensity.

Wildlife and Fish

Whiskeytown National Recreation Area supports an abundant and diverse wildlife community, which reflects the diversity of the vegetative communities in the park. More than 200 vertebrate species are known to occur in the park, including at least 35 mammal species, 150 bird species, and 25 reptile and amphibian species. Additional species are likely to be confirmed in the park as wildlife inventories become more complete. The perpetuation of relatively intact wildlife populations within the park is partially dependent on the ability of public and private land managers to ensure that adequate habitat is protected in and around the park boundary.

Lower Clear Creek within Whiskeytown National Recreation Area contains the federally Threatened spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and Central Valley steelhead trout (*Onchorynchus mykiss*). The Park also contains the federally listed Threatened northern spotted owl (*Strix occidentalis caurina*) as well as a Candidate Species, the Pacific fisher (*Martes pennanti*). The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), a federally Threatened species, has not been reported in the park, however, a small stand of blue elderberry, the host plant for the beetle, is present along Trinity Mountain Road near the northern park boundary.

The park also contains numerous species that are on the USFS and BLM list of Sensitive Species. Those species are: foothill yellow-legged frog (*Rana boylii*), northwestern pond turtle (*Clemmys marmorata marmorata*), tailed frogs (*Ascaphus truei*), northern goshawk (*Accipiter gentilis*), olive-sided flycatcher (*Contopus cooperi*), rufous hummingbird (*Selasphorus rufus*), red-breasted sapsucker (*Sphyrapicus ruber*), California thrasher (*Toxostoma redivivum*), long-eared myotis bat (*Myotis evotis*), fringed myotis bat (*Myotis thysanodes*), Yuma myotis bat (*Myotis yumanensis*) and the Pacific western big-eared bat (*Corynorhinus townsendii townsendii*).

The selected alternative for the Princess Ditch Trail was developed specifically to avoid or minimize potential impacts to special status species. The primary means of avoiding impacts to special status species was to locate the potential trail away from areas where special status species are known to occur or where critical habitat exists. Additionally, Best Management Practices will be used during trail construction to prevent erosion and sedimentation of streams. The majority of the trail will occupy an historic water ditch which is nearly level and significantly reduces the likelihood of erosion or sedimentation.

Impacts to spring-run Chinook salmon and Central Valley steelhead trout are expected to be negligible. Best Management Practices will be used during trail construction to minimize erosion and sedimentation. Additionally, nearly all of the trail will occupy an historic water ditch which is nearly level and this significantly reduces the likelihood of any erosion or resulting sedimentation. Bridges will also be constructed in several locations where the trail crosses seasonal streams to reduce erosion along stream banks. The proposed trail location is also located a substantial distance upslope of Clear Creek, where these two species spawn.

The Selected Action will not have any impacts to the northern spotted owl as suitable habitat is not present in or near the project area.

Primary impacts to terrestrial wildlife sensitive species under the Selected Action will likely be due to temporary disturbance during trail construction and from visitor use. Some vegetation will be removed along the trail route but similar vegetation and habitat will continue to exist in abundant quantities adjacent to the trail corridor. Impacts are expected to be adverse, short-term, and minor. Impacts to aquatic Sensitive Species are expected to be negligible. Best Management Practices will be used during trail construction to minimize erosion and sedimentation. Additionally, nearly all of the trail will occupy an historic water ditch which is nearly level and this significantly reduces the likelihood of any erosion or resulting sedimentation.

Impacts to fishers under Selected Action in all sections will primarily be limited to temporary disturbance during trail construction and post construction visitor use. Habitat modification due to trail construction will be minimal and small in scale as the components important to fisher habitat such as large trees, snags, denning sites, and riparian habitat will be retained. Many of the sightings of fishers in the park's wildlife observation database are along existing trails, so it is unlikely that the presence of trails or trail users causes fishers to avoid the area. Impacts to fishers under Alternative B will likely be adverse, long-term, and minor in intensity.

CULTURAL RESOURCE TOPICS

Cultural resources consist of archeological sites, historic structures, cultural landscapes, ethnographic resources, and museum objects. No potential impact to museum objects nor ethnographic resources are anticipated by this project and they are not discussed below.

Archeological Resources

Numerous archeological inventories have been completed covering approximately twenty-one percent of the park (8,900 acres) with 152 archeological sites currently recorded. Two prehistoric archeological districts within the park boundaries are listed on the National Register of Historic Places (NRHP) including Lower Clear Creek Archeological District (added 1979 - District - #79003812) and the Tower House Archeological District (Tower House--Soo-Yeh-Choo-Pus) (added 1985 - District - #85003483).

It appears that there is still archaeological information to be derived regarding engineering and construction methods of the Princess Ditch. Thick brush and steep terrain has limited possible discovery of tools and materials used to build the ditch, as well as personal items left by its builders. A minor amount of metal detector work along several hundred feet of the Princess Ditch only revealed some early shotgun shells. It is likely that artifacts from construction and builders are present along the ditch that might help illuminate ethnic associations, construction activities, and behavior/lifeways of the construction crews. It is possible that there are a few construction camps adjoining the ditch but these have not been identified. By and large we cannot say with certainty what the ditch and its archaeological associations could reveal concerning the past but there are certainly possibilities in this regard. We will ensure through mitigation measures and on-site monitoring that no unacceptable impacts to the ditch's integrity will occur.

Historic Structures

The Clear Creek Ditch, a forty mile-plus long water conveyance system constructed in the early 1850s, was evaluated in conjunction with a federal land exchange project east of Whiskeytown and determined to be National Register eligible (Bevill and Nilsson 2001). The ditch originates in Whiskeytown, and portions of it are maintained through use as recreational trails. The ditch continues onto BLM land into the Swasey Recreation Area and for several miles parallels but never intersects the Princess Ditch. The Clear Creek Ditch is significant in both the scope of the construction implemented and its' contribution to the local economy. The Clear Creek Ditch was found eligible for the National Register of Historic Places in 1993.

The Princess Ditch is a historic water ditch which was recently determined by the National Park Service to be eligible for the National Register of Historic Places. The Princess Ditch begins at Whiskeytown and continues onto BLM land for several miles. The Whiskeytown portion of the ditch is about one mile in length. It was originally recorded as "firebreak ditch" and thought to be an isolated segment and not related to any larger system. On May 8th, 2012, it was resurveyed, documented and confirmed as part of the Princess Ditch System. A historical study was completed to document the Princess Ditch's historical significance for the National Register of Historic Places (NRHP). Under the criteria for the NRHP, the ditch was found significant under criterion A, for its association with events that made a significant contribution to the broad patterns of local history; under criterion C, for its unique example of ditch constructing methods; and under criterion D was the possibility that more archeological information could be derived from the ditch with regards to its early engineering and construction methods. The study agreed that the Princess Ditch could be converted to a trail open to hikers and non-motorized vehicles without adverse effects to its historical integrity.

Along the ditch, various examples of rock walls were revealed during the 2012 survey. Additionally, barbed wire was uncovered as it crossed the path of the ditch. This style of barbed wire was first patented in 1892, however it is still in production today. From the discoloration and general condition of the wire, it is possible that it dates from the historic era. However, historic-era property lines do not follow the fence line. It is most likely installed for ranching or grazing of animals. This isolated feature location and photos were recorded in the WHIS Cultural Resources database. If the trail is constructed in the ditch, this wire will need to be removed for visitor safety. No artifacts were discovered during the survey. The survey ended where the ditch ended on the north side of Muletown Road. Historically, the ditch had a long flume that carried the water from across the canyon where the ditch continues. Abutments do still exist on the south side of the ditch; however, there is no current plan to continue the trail on the ditch on the south side of Muletown Road. No abutments or foundations remain on the north side of Muletown Road. These features exist on the Whiskeytown portion of the ditch as well as the portions that continue onto BLM land in the Swasey Recreation Area.

Cultural Landscapes

The ditch is part of a large complex of mining features that tell the story of Whiskeytown. The ditch has not been evaluated nor inventoried as a cultural landscape as of yet. In the meantime, the area is being managed as eligible for the National Register and features are being preserved.

Cultural Resources Summary

Under the Selected Alternative, the trail would be built in the Princess Ditch. If mitigations are followed correctly, the project will have beneficial impacts to the ditch. The project will remove

encroaching vegetation and visitor use of the ditch will preserve the ditch tread. The temporary disturbance in the ditch will be negligible in the long term and will be reversable. The use of the trail by hikers and horses will contribute to the deepening and widening of the trail tread. This will not affect the integrity of the ditch, nor make it ineligible for the National Register of Historic Places. Furthermore, all flumes that were used to historically convey water in the ditch have disappeared with time. Building bridges to cross streams and drainages will add to the historic value by showing were flumes historically existed. The trail, in the long term and if all mitigations are followed, will help to protect and preserve the Princess Ditch as an archeological site, a historic structure, and a cultural landscape. As a result, overall impacts to cultural resources as a result of constructing this trail are expected to be beneficial, long-term and minor.

SUMMARY

As described above, adverse effects and environmental impacts anticipated as a result of implementing the Selected Action on a resource or value whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or identified as significant in the park's general management plan or other relevant NPS planning documents, would not rise to levels that would constitute impairment of park values and resources.