Environmental Assessment

Mt. Hough - South Park

Proposed Trail System Project

Mt. Hough Ranger District, Plumas National Forest
Plumas County, California

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SUMMARY

The Plumas National Forest proposes to create a network of motorized and non-motorized National Forest System (NFS) trails on the Mt. Hough Ranger District. This action is needed because the District is lacking a quality trail system close to Quincy, California. These non-motorized and motorized trails would benefit local Plumas County residents as well as visitors who would help stimulate the local economy.

The Mt. Hough – South Park Proposed Trail System Project (referred to as the MHSP Trails Project hereafter) is located in close proximity to the town of Quincy, California within the Mt. Hough Ranger District, Plumas National Forest. The entire non-motorized trail network proposed in the South Park area is within 5 miles of Quincy, California and encompasses all or portions of: T24N, R9E, sections 1 and 2; T24N, R10E, section 6; T25N, R9E, sections 25, 26, 35, and 36; and T25N, R10E, section 31. The motorized trail network proposed in the Mt. Hough area is within 9 miles of Quincy, California and encompasses all or portions of: T24N, R10E, sections 1, 4-6, and 9; T25N, R9E, sections 1, 2, 11-13, and 23-25; T25N, R10E, sections 6-9, 14-24, and 28-33; T25N, R11E, sections 30-33; and T24N, R11E, sections 4, 9, 10, and 15, Mt. Diablo Base Meridian (MDBM).

Proposed for inclusion are 16.6 miles of non-motorized trails in the South Park area and 35 miles of motorized trails in the Mt. Hough area (21.4 miles of singletrack, 11 miles of quad trails, and 2.6 miles open to all vehicles) for a total of 51.6 miles. More than 80 percent of the routes exist currently on the landscape and require rerouting or reconstruction. A total of 8.5 miles of motorized routes and 1.7 miles of non-motorized trails are proposed for new construction. To mitigate the effects of these actions, 4.75 miles of roads and routes would be improved and a total of 3.8 miles of poorly-placed, currently-eroding roads and routes are proposed to be closed or obliterated.

There is a need to provide a balance of non-motorized and motorized trail opportunities and to improve high-quality trails for all users. The Mt. Hough Ranger District currently has no non-motorized system trails and approximately 36.2 miles of motorized system trails within five miles of Quincy. There is a need to stabilize trail prisms, provide drainage, and design trails for maximum stability and minimum soil loss. Many of the existing trails in the Mt. Hough and South Park areas are unmaintained and overgrown with vegetation, too narrow to accommodate multiple user groups, and placed in locations that exacerbate loss of vegetation and soil erosion. These unauthorized routes were originally created by users without prior consideration of the potential effects of trail use on natural resources. There is a need to provide adequate trailhead facilities, directional trail signs, and signage indicating allowed use and right-of-way regulations on these trails. The existing trails in the Mt. Hough and South Park areas lack adequate signage and parking facilities. Equestrians do not have sufficient parking space to accommodate trailers. There is potential for users to get confused or lost in the trail system because there are no directional signs or maps; additionally, there is no signage to encourage proper trail sharing etiquette. There is a need to address sanitation and safety hazards in the Cascade Trailhead area to protect natural and cultural resources.
Dispersed camping along the access road to the Cascade Trailhead (NFS road 25N48X) has created water quality concerns because campers do not properly dispose of their trash and feces. Campers using the dispersed campsites have lit illegal campfires and these fires have been left unattended, creating a public safety hazard.

The proposed action effectively meets all of these purposes and needs. All motorized and non-motorized users would benefit from having increased trail opportunities as a result of this project. Table 1 summarizes the total miles of routes and roads that would be available to various recreational users after full project implementation. The symbols in the table columns correspond to the map (Figure 1) available online at the project website (http://1.usa.gov/13SkXSn). The proposed trail development and reconstruction would provide a balance of high-quality motorized and non-motorized trails, all located within 9 miles of Quincy. Trails would be improved with adequate drainage and poorly-located trails or routes would be removed or decommissioned. Design criteria and mitigations would minimize impacts resulting from the proposed action.

Table 1. Miles of routes that would be available to various users after full implementation of the MHSP Trails Project.

<table>
<thead>
<tr>
<th>User group</th>
<th>Non-motorized trail (miles)*</th>
<th>Singletrack Trails (miles)</th>
<th>Quad Trails** (miles)</th>
<th>All-vehicle Trails*** (miles)</th>
<th>NFS, native-surface roads (miles)</th>
<th>TOTAL (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-motorized</td>
<td>16.6</td>
<td>21.4</td>
<td>15.0</td>
<td>16.4</td>
<td>101.2</td>
<td>170.6</td>
</tr>
<tr>
<td>Motorcycle</td>
<td></td>
<td></td>
<td>15.0</td>
<td>16.4</td>
<td>101.2</td>
<td>154.0</td>
</tr>
<tr>
<td>Quad</td>
<td></td>
<td></td>
<td></td>
<td>16.4</td>
<td></td>
<td>132.6</td>
</tr>
<tr>
<td>4WD vehicle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>117.6</td>
</tr>
</tbody>
</table>

* Includes 2.9 miles of non-motorized trails that would be deferred from implementation and public use until legal access is enabled (see Figure 2 for a map of the deferred trails).

** Includes 11 miles proposed in this project and 4 miles of existing system trails.

*** Includes 2.6 miles proposed in this project and 13.8 miles of existing system trails.

The four trailheads proposed to be designated as part of this NFS network would provide adequate access to the proposed trails. Two would be unmodified (Four Corners and Spanish Creek), one would be modified (Cascade) and one would be newly-developed (South Park). The Cascade Trailhead would be modified to protect natural and cultural resources. A restroom would be installed and the area would be designated as day use only; both of these actions would improve sanitation conditions in this area. The day use designation would also decrease the risk of accidental ignition of a wildfire in this area. The South Park trailhead would be newly-developed and would
accommodate trucks towing trailers, providing equestrians with safe parking access for the South Park trail system.

The proposed action would have beneficial effects on recreation users because all users would gain access to more miles of improved trails. These trails include loop opportunities and have been designed for user satisfaction. Increased directional and right-of-way signage would also improve the user experience because it would be easier to navigate the trails and users would be informed about allowed use and proper trail etiquette. The increased signage is expected to decrease the potential for conflict among various user groups.

The proposed action also includes treatment of invasive plants along some roads and trails in the project area. Invasive plant species pose a significant threat to ecological function due to their ability to displace native species, alter nutrient and fire cycles, decrease the availability of forage for wildlife, and degrade soil structure. The potential to spread these invasive plant species from the areas of known infestations would be increased by the authorization of motorized use of these trails. The proposed treatment of invasive plants would aim to eradicate known infestations and would minimize the risk of spread. The effects of this activity would benefit native plant biodiversity. Associated risks to human health, wildlife, and natural and cultural resources are not substantial due to adherence to product labels and specific design criteria.

Roads are the largest single human-caused source of sedimentation and habitat degradation within the project area. Improperly constructed or unmaintained roads may restrict aquatic organism passage and transport sediment to streams and riparian areas, thus degrading water quality, impairing aquatic habitat and overall watershed health. Currently, repetitive routes exist that have undesirable environmental impacts and contribute little recreation and transportation value to the proposed trail system. The watershed analysis showed that some of the watersheds are approaching the threshold of concern. Therefore, to mitigate these concerns, 4.75 miles of routes would be improved and 3.8 miles of poorly-located, actively-eroding road and trail segments would be closed or obliterated. Actions would range from physically blocking routes with boulders and scattering available woody material to complete obliteration and supplemental planting of riparian vegetation at stream crossings. The elimination of these select routes in favor of a well-designed network is consistent with providing a quality trail system and for recreation and access.

In addition to the proposed action, the Forest Service also evaluated a no action alternative. Under the no action alternative, Alternative B, the proposed action would not take place. No trail development or restoration, trailhead development or modification, treatment of invasive plants, or decommissioning of roads and trails would be implemented to accomplish the purposes and needs through a variety of specific treatments.

Based upon the effects of the proposed action and no action alternatives, the Responsible Official will decide whether to implement the proposed action or not to implement any project at this time.
INTRODUCTION

Document Structure

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

- **Introduction:** The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency’s proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

- **Comparison of Alternatives, including the Proposed Action:** This section provides a more detailed description of the agency’s proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on relevant issues raised by the public and other agencies. This discussion also includes possible mitigation measures.

- **Environmental Consequences:** This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the effects of the Proposed Action. An evaluation of the effects of the No Action Alternative provides a baseline for comparison.

- **Agencies and Persons Consulted:** This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

- **Appendices:** The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project record located at the Mt. Hough Ranger District Office in Quincy, California.

Purpose and Need for Action

The purpose of this initiative is to establish a network of motorized and non-motorized NFS trails in the Mt. Hough and South Park areas of the Mt. Hough Ranger District. This action is needed because of increased demand on the Forest for suitable recreation facilities and because the existing, user-created trails are substandard and unauthorized for public use. This action responds to the goals and objectives outlined in the Plumas National Forest Land Management Plan, 1988, and helps move the project area towards desired conditions described in that plan. According to the Forest Plan, page 4-24, the Forest will “Provide a variety of trail use opportunities,” “construct new trails according
to management area direction,” and will “stabilize trail prisms, provide drainage, and otherwise design trails for maximum stability and minimum soil loss.”

The Mt. Hough Ranger District is lacking quality motorized and non-motorized trail networks located in close proximity to Quincy, California. The existing, incidental motorized routes in the Mt. Hough area do not currently tie through to other adjacent areas and their use was not included in the recent Plumas National Forest Public Motorized Travel Management Environmental Impact Statement. The user-created, non-motorized trails north of Chandler Road and south of Spanish Creek in the area known as South Park are sub-standard and are in need of route definition and safety upgrades. The desired condition for the motorized trail system is to allow for return loops and experiences for a variety of rider ability levels as well as modes of travel. The desired condition for the non-motorized trail system is a safe network of system trails capable of accommodating multiple user groups (hikers, cyclists, and equestrians).

This action is needed because of increased demand on the Forest for suitable recreation opportunities. This action responds to the goals and objectives outlined in the Plumas National Forest Land Management Plan, 1988, as listed above, and helps move the project area towards desired conditions described in that plan. We anticipate that these trail networks would benefit local Plumas County residents and would bring in visitors who would help stimulate the local economy.

**Purpose 1:** Provide a variety of trail use opportunities (PNF LRMP, page 4-24)

**Objective 1:** Increase and improve high-quality motorized and non-motorized trails near Quincy

**Objective 2:** Provide a balance between non-motorized and motorized trail opportunities

**Need for action:** The Mt. Hough Ranger District lacks quality motorized and non-motorized trails near Quincy, CA. The District currently has approximately 36.2 miles of motorized system trails and no non-motorized system trails within five miles of Quincy. For the entire Mt. Hough Ranger District, the recent Plumas National Forest Public Motorized Travel Management Environmental Impact Statement (TMFEIS) included only 3.5 miles of singletrack routes and 20 miles of quad routes. The connectivity of the included motorized trails was not adequate in some locations. Non-motorized trails were not addressed in the TMFEIS, as it explicitly focused on motorized trails. The user-created, non-motorized trails north of Chandler Road and south of Spanish Creek in the area known as South Park are sub-standard and are in need of route definition and safety upgrades.

**Desired condition:** The South Park Trail network provides visitors with opportunities to experience the natural environment in a rustic, primitive setting. The area remains relatively free of man-made influences. Opportunities exist for hiking, horseback riding, and mountain biking on trails that are close to Quincy and open year-round. The Mt. Hough motorized trail network includes routes for a variety of rider ability levels as well as modes of travel. Motorized trails include return routes and through routes connecting to other areas on the forest.
Opportunities exist for riding motorcycles and all-terrain vehicles on trails that are close to Quincy.

**Purpose 2:** Construct new trails according to management area direction while providing utility and resource protection (PNF LRMP page 4-24)

**Objective 1:** Stabilize trail prisms, provide drainage, and otherwise design trails for maximum stability and minimum soil loss.

**Need for action:** Many of the existing trails in the Mt. Hough and South Park areas are unmaintained and overgrown with vegetation, too narrow to accommodate multiple user groups, and placed in locations that exacerbate loss of vegetation and soil erosion. These unauthorized routes were originally created by users without prior consideration of the potential effects of trail use on natural resources.

**Desired condition:** A trail system that provides safe public access and recreational travel and meets future resource management needs, while reducing adverse water quality and ecological impacts associated with public access.

**Purpose 3:** Provide adequate public access and parking for recreational trails

**Objective 1:** Provide trailhead facilities including small parking areas, directional trail signs, and bulletin boards

**Objective 2:** Maintain adequate directional signage indicating allowed use and right-of-way regulations

**Need for action:** The existing trails in the Mt. Hough and South Park areas lack adequate signage and parking facilities. Equestrians do not have sufficient parking space to accommodate trailers and are therefore limited on where they can go. Vehicles park along the edge of Chandler Road creating a traffic hazard on this narrow road. There is potential for users to get confused or lost in the trail system because there are no directional signs or maps of the area.

**Desired condition:** Trail improvements in the South Park and Mt. Hough trail networks encourage visitor attendance and provide for safe access. A new parking area along Chandler Road would allow for vehicles and trailers. Adequate signage indicates trail direction and permissible users. Trailheads would have bulletin boards with maps and information on trail etiquette.

**Purpose 4:** Improve recreation experiences and opportunities

**Objective 1:** Prohibit dispersed camping to protect natural and cultural resources

**Objective 2:** Provide sanitation facilities at trailheads where needed to protect water quality (PNF LRMP page 4-24)

**Need for action:** Dispersed camping along the access road to the Cascade Trailhead (NFS road 25N48X) has created water quality concerns because campers do not properly dispose of their trash and feces. Public health and safety are impacted because day use visitors use the area and swim in the creek. Campers using the dispersed campsites have lit illegal campfires and these fires have been left unattended, creating a safety hazard and threatening nearby homes. Campers are
not adhering to stay limit restrictions. The Forest has received numerous complaints from the public concerning these problems associated with dispersed camping at this location.

**Desired condition:** A safe area for public day use recreation with adequate sanitation facilities. The areas adjacent to the proposed trailhead and NFS road 25N48X would be limited to “day use only” and overnight camping would be prohibited. Barriers would be placed along NFS road 25N48X where necessary from its intersection with County Road 416 to the Cascade Trailhead to manage dispersed recreation, protect cultural resources, and prevent driving off road. Informational and educational signs would be installed at the beginning of NFS road 25N48X and along NFS road 25N48X to identify the area as “day use only.” Law enforcement efforts would be implemented to help enforce restrictions in the project area. A developed campground a few miles downstream of this location would remain available for individuals looking for a camping experience along the creek.

**Proposed Action**

To meet the purpose and need, the Mt. Hough Ranger District is proposing to selectively incorporate some of the existing, user-created, non-motorized trails in the South Park area and motorized trails in the Mt. Hough area into the National Forest System (NFS) trail network. This would include maintenance of trails currently existing on the ground and reconstruction of existing trails that are currently overgrown. Motorized and non-motorized trails have been evaluated to determine their suitability for inclusion in the authorized NFS trail network. Existing trails causing resource damage or concerns would be re-routed, rehabilitated, or excluded from the NFS trail network. Where appropriate, short segments of new trails would be constructed to complete loop routes and enhance the quality of the user experience. Proposed for inclusion are 16.6 miles of non-motorized trails and 35 miles of motorized trails (21.4 miles of singletrack, 11 miles of quad trails, and 2.6 miles open to all vehicles).

Four trailheads would be designated. Two would be unmodified (Four Corners and Spanish Creek), one would be modified (Cascade) and one would be newly-developed (South Park). The Cascade Trailhead would be modified to protect natural and cultural resources. The area along Spanish Creek on the National Forest System (NFS) road 25N48X to the Cascade Trailhead would become a day use area, eliminating dispersed camping to reduce resource concerns. The trailhead would be moved 500 feet and barriers would be installed where necessary to protect cultural and natural resources. A restroom would be installed at this location to address sanitation issues. A new trailhead would be developed for the South Park trail system and would accommodate trucks towing trailers.

Signage would be installed at trailheads and along the trails to indicate which users are allowed on the designated trails. Signs would inform users about who has the right-of-way and principles of trail etiquette.
To control the spread of invasive plants along the trails, herbicide would be applied to individual plants because other treatment methods have been ineffective in the past. Invasive plant species pose a significant threat to ecological function due to their ability to displace native species, alter nutrient and fire cycles, decrease the availability of forage for wildlife, and degrade soil structure. The potential to spread these invasive plant species from the areas of known infestations would be increased by the authorization of motorized use of these trails. The largest known concentration of invasive plants in the project area is centered on the Four Corners Trailhead and includes scattered infestations along NFS roads 25N14, 25N14B, 24N80, and 25N19 as well as Mt. Hough Road and the proposed North Tollgate trail. A second, smaller concentration of weed infestations exists in the Massack area along NFS roads 25N41 and 25N41A. Additional scattered occurrences are found along the proposed Spanish Bridge, Flume, and Grizzly Ridge 1 trails and NFS roads 25N52Y, 25N07, and 25N10Y. Infestations of medusahead, yellow starthistle, Canada thistle, and Himalayan blackberry within 100 feet of these roads and trails would be controlled with a directed application of herbicides on individual plants using backpack sprayers or similar equipment. The total area treated would not exceed 75 acres and would be along no more than three miles of road. In most cases, the areas requiring treatment are less than 0.1 acre and less than 100 linear feet. To ensure complete eradication of these infestations, these treatments could be repeated annually for up to five years.

Management Direction

The 1988 Plumas National Forest Land and Resource Management Plan (PNF LRMP) as amended by the 2004 Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement Record of Decision (SNFPA FSEIS ROD) guides the proposed action and no action alternatives. Authorizing the improvement and construction of these trails would implement direction in the PNF LRMP, as listed above, and in the SNFPA FSEIS ROD.

“This decision reaffirms that providing recreation opportunities is one of the Forest Service’s major missions in California, along with providing sustainable, healthy ecosystems... Projected population growth in the United States and increasing tourism in the region, along with other factors, clearly contribute to increasing demand for recreation facilities and services throughout the Sierra Nevada national forests.” (SNFPA FSEIS ROD, page 11)

Authorizing the treatment of invasive plants in the project area would implement direction in the SNFPA-FEIS ROD for noxious weed management:

- Priority 1. Prevent the introduction of new invaders
- Priority 2. Conduct early treatment of new infestations
- Priority 3. Contain and control established infestations (SNFPA FSEIS ROD, page 36)

According to FSH 1909.15 chapter 40, an EA and a Decision Notice are appropriate for this level of activity.
Project Location

The proposed project is located within the Mt. Hough Ranger District, Plumas National Forest, in Plumas County, California. The non-motorized trail network proposed in the South Park area is located in between State Highway 70 and Oakland Camp, north of Chandler Road and south of Spanish Creek. South Park encompasses all or portions of: T24N, R9E, sections 1 and 2; T24N, R10E, section 6; T25N, R9E, sections 25, 26, 35, and 36; and T25N, R10E, section 31. The motorized trail network proposed in the Mt. Hough area is located between Spanish Creek east to Grizzly Ridge, north to Indian Falls Ridge, and south to Highway 70. Mt. Hough encompasses all or portions of: T24N, R10E, sections 1, 4-6, and 9; T25N, R9E, sections 1, 2, 11-13, and 23-25; T25N, R10E, sections 6-9, 14-24, and 28-33; T25N, R11E, sections 30-33; and T24N, R11E, sections 4, 9, 10, and 15, MDBM. Figure 1 is a map showing the proposed trail networks.

Proposed trailhead sites include three locations for the South Park non-motorized network and one for the Mt. Hough motorized trail network. The existing Cascade Trailhead is located on NFS road 25N48X, T25N, R9E, section 26. The second trailhead, Spanish Creek Trailhead is located at the low water crossing on the Oakland Camp Road, T24N, R10E, section 8. A new South Park Trailhead would be located on Chandler Road approximately ¼ mile east of the intersection of State Highway 70 on NFS land in T24N, R9E, section 2. This area would be newly developed and would be designed to accommodate horse trailers. The existing Four Corners Trailhead would be used for the motorized trails and is located at the intersection of the Mt. Hough Road and NFS road 25N14, T24N, R10E, section 4. The existing trailheads at Four Corners and Spanish Creek would not be modified. The South Park Trailhead on Chandler Road would be newly constructed and the Cascade Trailhead would be modified to protect natural and cultural resources.

Proposed areas for treatment of invasive plants are located along roads and trails in the project area. The largest infestation is centered on the Four Corners trailhead, located at the intersection of the Mt. Hough Road and NFS road 25N14 in T24N, R10E, section 4. Herbicide treatments are also proposed along short segments of roads and routes in the following areas: T24N R10E sections 3-6, 8-9, and 23; T25N R9E sections 13, 24, and 26; T25N R10E sections 24, 27, 29-30, and 32-34; and T24N R9E, section 1, MDBM.

Decision Framework

The Responsible Official for the MHSP Trails Project would be the District Ranger for the Mt. Hough Ranger District. The Responsible Official would decide whether to implement the MHSP Trails Project as stated in the Proposed Action, as modified by an alternative, or not to implement the project at this time.

Public Involvement

The proposal was listed in the Schedule of Proposed Actions on February 29, 2012 and is available on the Forest Service website (http://www.fs.usda.gov/plumas/) under the
Land and Resources Management tab. The proposal was provided to the public and other agencies for comment during scoping which began on February 29, 2012 when legal notice of the scoping period was published in the Feather River Bulletin. In addition, the Feather River Bulletin published a cover story on this project on March 7, 2012. The agency participated in a public meeting held by Sierra Buttes Trail Stewardship at the Quincy Public Library on March 12, 2012. As part of the public involvement process, the agency sent out a scoping letter on March 27, 2012. After this initial scoping period, the project was modified based on public comments as well as internal comments from the interdisciplinary team. A scoping update outlining the changes to the proposed action was sent out on February 5, 2013. In addition, the Responsible Official and members of the interdisciplinary team met on several occasions with individuals from the Sierra Access Coalition, Sierra Buttes Trail Stewardship, the California Native Plant Society, and with other interested individuals. Contacts were made with these interested parties to ensure full involvement and, where appropriate, consultation early in the project.

Using the comments from the public, other agencies, and these organizations, the interdisciplinary team developed a list of issues to address (see Issues section, below). A total of 59 written and 131 electronic comment letters were submitted. A list of those who submitted comments is included in the Consultation and Coordination section on pages 73-74. These comments were reviewed and evaluated by the interdisciplinary team. These comments and their disposition are summarized in the project record.

**Issues**

Issues serve to highlight effects or unintended consequences that may occur from the proposed action and alternatives, giving opportunities during the analysis to reduce adverse effects and compare trade-offs for the decision maker and public to understand. Issues are best identified during scoping early in the process to help set the scope of the actions, alternatives, and effects to consider; but, due to the iterative nature of the NEPA process, additional issues may come to light at any time.

An issue should be phrased as a cause-effect statement relating actions under consideration to effects. An issue statement should describe a specific action and the environmental effect(s) expected to result from that action. Cause-effect statements provide a way to understand and focus on the issues relevant to a particular decision.

There is no set of standard issues applicable to every proposal, so it is important for the Responsible Official to consider a variety of laws, regulations, executive orders and input, with the help of the interdisciplinary team. The Responsible Official approves the issues to be analyzed in depth by the interdisciplinary team in the environmental analysis (FSM 1950.41). It is often helpful to group similar issues by common resource, cause-effect relationships, common geographical area, or those linked to the same action.

The Forest Service separated the scoping comments into two groups: Category A and Category B issues. Category A issues were defined as those directly or indirectly caused
by implementing the proposed action. Category B issues included those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. Some of the Category A issues contributed to changes in the proposed action. Other Category A issues are described below and will be tracked during project planning and implementation. A list of Category B issues and reasons regarding their categorization can be found in the project record.

The Forest Service identified the following topics of concern raised during scoping:

**Concerns regarding multiple use trails**

**Issue #1.** Allowing multiple types of users on the same trails will lead to conflicts between user groups.

**Issue #2.** Allowing bicycles on the South Park trails will have a detrimental effect on equestrian use of these trails. Equestrians are concerned that the expected increase in bicycle use will displace them from their historic trails.

**Issue #3.** Allowing bicycles on the South Park trails will create hazardous conditions for horses and equestrians.

**Issue #4.** Increased use of these trails will lead to an increase in trail user conflicts.

**Issue #5.** Allowing bicycles and equestrians on the Cascade Trail will lead to unsafe conditions for hikers on that trail.

**Issue #6.** Bicycles like to go downhill fast and motorcycles like to go uphill fast. Increased use of the motorized trails by bicycles and motorcycles will lead to user conflicts and hazardous conditions.

**Response to Issues 1-6:** The proposed trail network would provide increased recreation opportunities for motorized and non-motorized users. Non-motorized trails would be mixed use and would accommodate hikers, cyclists, and equestrians. Motorized trails would have clear signage indicating allowed users. Maps and signage would be installed at all trailheads and along trails to indicate trail locations and instructions on proper trail etiquette. After project implementation, trail use would be monitored. If conflicts between user groups are substantial, mitigation measures would be proposed.

**Concerns regarding trail design**

**Issue #7.** If the trails are widened, cyclists will travel faster, increasing safety hazards.

**Issue #8.** Widening the Cascade Trail will lead to unsafe speeds.

**Issue #9.** The trails need to be built wide enough to safely accommodate equestrians and their horses (See the Equestrian Design Guideline book published by the USFS and US Dept of Transportation).

**Response to issues 7-9:** Trail construction and maintenance would follow design parameter guidelines identified in Forest Service Handbook (FSH) 2309.18, Section
23.13, Exhibit 01. Deviation from design parameters may be established based on trail-specific conditions, topography, or other factors. Sections of the Cascade Trail are currently too narrow based on an evaluation by the Forest Engineer. These sections will be widened to improve safety on the trail.

Concerns regarding non-motorized use on motorized trails

Issue #10. In the interest of public safety, some motorized routes on Mt. Hough may need to be restricted to motorized use only (no equestrians or bicycles). Non-motorized users on motorized trails may lead to safety hazards. We trust the ID Team’s engineering analysis will identify routes with safety concerns so that mitigation measures can be taken.

Response to issue 10: Motorized trail development would follow project design criteria for trail development listed in Table 3 in the proposed action. Using trail design parameter guidelines for quad trails and singletrack identified in Forest Service Handbook (FSH) 2309.18, Section 23.13., existing substandard trail conditions would improve. Widening tread widths and clearing limits would have beneficial impacts on future trail safety and help improve sight distances, thereby helping to minimize future conflicts on trails in the Mt. Hough trail network. This design feature in combination with the trail signing design feature would have overall benefits to motorized recreation opportunities by minimizing future conflicts and improving visitor satisfaction.

User conflicts between motorized and non-motorized uses on the Mt. Hough trail network would be anticipated to be minimal. Project design criteria for trail design, signing, and monitoring would minimize conflicts. Trail use would be monitored after project implementation. If conflicts between user groups are substantial, mitigation measures would be proposed. The Downieville Downhill Trail on the Tahoe National Forest is an existing positive example where shared use of singletrack trails occurs between motorcycles and mountain bikers.

Concerns regarding illegal activities

Issue #11. If the South Park trails are improved, illegal motorized use is likely to occur and will be difficult to regulate.

Issue #12. Many of the roads and trails in the MHSP Trails Project are illegal and should be decommissioned.

Response to issues 11-12: After project implementation, trail use will be monitored. If illegal activities occur, mitigation measures will be proposed. Illegal routes have been evaluated during this planning effort. If these routes have been determined to be suitable for inclusion in our proposed trail network, they would become legal routes. If they are not suitable for inclusion, they would be decommissioned.

Concerns Regarding Natural and Cultural Resources

Issue #13. Improving trails for motorized use will impact wildlife in the Mt. Hough State Game Refuge.
Response to issue 13: Some trails originally proposed in and near the Mt. Hough State Game Refuge have been dropped from this project. Potential impacts to wildlife are analyzed and addressed in our wildlife analysis. Refer to the wildlife effects analysis in this EA and the wildlife specialist report in the project record.

Issue #14. There is a growing star thistle problem on the east side of Mt. Hough Road east to Chandler Creek and south to the railroad track. Weeds may be spread by vehicles on these trails.

Response to issue 14: The Forest Service is aware of the star thistle problem. The agency incorporated manual and mechanical treatments into the Empire Project and still have not been successful at controlling yellow starthistle and medusahead. These invasive plant infestations are also well established on neighboring private lands. The proposed action includes herbicide control measures at known infestation locations as part of this project. Treatment of private lands is up to private landowners and Plumas County Department of Agriculture and is beyond the scope of this project.

Issue #15. Widening the trails and constructing new trails will cause erosion.

Response to issue 15: Project design criteria include the addition of appropriate trail drainage features (water bars, rolling dips, or out-sloped trail segments) to minimize erosion. (See Erosion Design Criteria in Table 3). Although disturbances related to trail construction and rehabilitation may cause localized sediment production and potential transport, overall trail-induced erosion would be expected to be greatly reduced as a result of the proposed action and associated design criteria.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the MHSP Trails Project. It includes a description of each alternative considered.

Alternatives Considered in Detail

Alternative A - The Proposed Action

The proposed action includes four types of activities: trail development, designation of a day use area, trailhead designation and development, and treatment of invasive plants.

1. Trail Development

The Mt. Hough Ranger District is proposing to selectively incorporate some of the existing, user-created, non-motorized trails in the South Park area and motorized trails in the Mt. Hough area into the National Forest System (NFS) trail network. Motorized and non-motorized trails have been evaluated to determine their suitability for inclusion in the authorized NFS trail network. Existing trails that are suitably located would be maintained or, if they are overgrown, reconstructed. Trails causing resource damage or concerns would be re-routed, rehabilitated, or excluded.
from the NFS trail network. Where appropriate, short segments of new trails would be constructed to complete loop routes and enhance the quality of the user experience.

Proposed for inclusion are 16.6 miles of non-motorized trails in the South Park area and 35 miles of motorized trails in the Mt. Hough area (21.4 miles of singletrack, 11 miles of quad trails, and 2.6 miles open to all vehicles) for a total of 51.6 miles. Figure 1 is a map showing all proposed routes in the project area. Table 2 provides a breakdown of routes by level of construction required. All of the proposed trails were included in the analysis of environmental effects contained in this environmental assessment. However, 2.9 miles of the non-motorized trails are located on private lands and are deferred from implementation and public use until legal access is enabled. The deferred trails are shown in Figure 2.

Table 2. Miles of routes proposed for inclusion in the MHSP Trails Project

<table>
<thead>
<tr>
<th>Construction Type</th>
<th>Miles of route</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motorized</strong></td>
<td></td>
</tr>
<tr>
<td>Existing routes proposed for inclusion “as is”</td>
<td>6.1</td>
</tr>
<tr>
<td>Existing routes requiring minor rehabilitation</td>
<td>9.7</td>
</tr>
<tr>
<td>Existing routes requiring rehabilitation</td>
<td>10.7</td>
</tr>
<tr>
<td>Routes proposed for new construction</td>
<td>8.5</td>
</tr>
<tr>
<td>Subtotal of motorized routes</td>
<td><strong>35.0</strong></td>
</tr>
<tr>
<td><strong>Non-motorized</strong></td>
<td></td>
</tr>
<tr>
<td>Existing routes proposed for inclusion “as is”</td>
<td>8.3</td>
</tr>
<tr>
<td>Existing routes requiring minor rehabilitation</td>
<td>4.4</td>
</tr>
<tr>
<td>Existing routes requiring rehabilitation</td>
<td>2.2</td>
</tr>
<tr>
<td>Routes proposed for new construction</td>
<td>1.7</td>
</tr>
<tr>
<td>Subtotal of non-motorized routes</td>
<td><strong>16.6</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51.6</strong></td>
</tr>
</tbody>
</table>
Figure 1. MHSP Trails Project map, including all of the motorized and non-motorized routes proposed in Alternative A – the Proposed Action.
Figure 2. Map of the proposed South Park non-motorized trail system showing the trails on private land that would be deferred from project implementation and public use until legal access is enabled.
### Table 3. Design Criteria for Trail Development

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trail Signing</strong></td>
<td>Install trail etiquette and “multi-use yield” signs at trailheads and along trails to inform trail users about proper trail usage and to minimize user conflicts.</td>
</tr>
<tr>
<td><strong>Trail Monitoring</strong></td>
<td>Trail use would be monitored after project implementation. Monitoring would be done by implementing visitor exit surveys at trailheads. These surveys could be either in-person interviews or survey questionnaires in boxes stationed at trailheads. If conflicts between user groups are determined to be substantial, mitigation measures would be proposed.</td>
</tr>
<tr>
<td><strong>Erosion control</strong></td>
<td>Appropriate trail drainage features (water bars, rolling dips, or out-sloped trail segments) would be installed at least every 100 feet, except for relatively flat portions of trail (&lt;5 % slope), to allow runoff to be discharged from the trail surface. Stream crossings shall be armored with 2-3 inch diameter rock. Re-contour and scatter available woody material on all abandoned trail segments that have been re-routed due to extreme slopes or other resource concerns.</td>
</tr>
<tr>
<td><strong>Trail Design Parameters for Non-Motorized Trails</strong></td>
<td>Trail construction and maintenance would follow minimum design parameter guidelines for ‘Pack and Saddle’ Non-Wilderness (single lane) identified in Forest Service Handbook (FSH) 2309.18, Section 23.13, Exhibit 01. Design tread width for non-motorized trails would be 12”-24” (may be up to 48” along steep side slopes). Design clearing height would be 8’-10’ and width would be 72” (light vegetation may encroach into clearing area). Deviation from these design parameters may be allowed based on trail-specific conditions, topography, or other factors.</td>
</tr>
</tbody>
</table>
| **Trail Design Parameters for Motorized Trails** | Trail construction and maintenance would follow minimum design parameter guidelines for motorized trails identified in Forest Service Handbook (FSH) 2309.18, Section 23.13, Exhibit 01. Deviation from these design parameters may be allowed based on trail-specific conditions, topography, or other factors.  

  **Singletrack motorcycle Trails** - Design tread width for singletrack motorcycle trails would be 8”-24”. Design clearing height would be 6’-7’ and clearing width would be 36”-48” (light vegetation may encroach into clearing area).  

  **Quad Trails** - Design tread width for quad trails would be 48”-60”. Design clearing height would be 6’-7” and clearing width would be 36”-48” (light vegetation may encroach into clearing area).  

  **All Vehicle Routes** - Design tread width for routes open to all vehicles would be 72”. Design clearing height would be 6’ and the turning radius would be 15’. Surface protrusions up to 12” may be common and continuous; obstacles up to 36” may be common or placed for increased challenge. The target grade would be 15%, (maximum 25%) and the target cross slope would be 10% (maximum 15%). |
| **Trail Maintenance**          | Trails would remain open during routine maintenance activities. Notification would be posted at trailheads.                                                                                           |
| **Trail Closures**             | Advanced notice of trail closures for herbicide treatments or construction activities would be posted at trailheads and on the the forest website. Trails would remain open during routine maintenance activities, but posted at trailheads. During trail construction, trails would be closed for safety. |
| **Cultural Resource Site Protection** | Recontouring the stream crossing at the north end of Oakland Camp would be monitored by Heritage Resource personnel due to close proximity to heritage resources. |

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Table 4. Design Criteria common to all ground-disturbing actions

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Actions</th>
</tr>
</thead>
</table>
| Cultural Resource Site Protection | • Archaeological sites and boundaries would be flagged for avoidance.  
• New trail construction would be rerouted to avoid significantly impacting cultural resources.  
• Interpretive signs would be installed near heritage resource sites to protect cultural resources and educate visitors on local cultural resources.  
• Trees shall be felled away from archaeological sites and culverts shall be installed which route water away from archaeological sites.  
• Refuse not of an historical nature (50 years or less) would be removed from cultural resource sites under supervision of Plumas National Forest Heritage Resource staff.  
• Install barriers where necessary to prevent driving on cultural resource sites.  
• All earth-moving equipment would avoid cultural resource sites.  
• If cultural resources are discovered during project implementation where none are known, the Mt. Hough RD Heritage Resources Staff will be contacted immediately and the discovery will be dealt with as appropriate. |
| Invasive plant prevention measures | • Off-road equipment would be free of weeds and cleaned of all mud, dirt, and plant parts at a vehicle washing station or steam-cleaning facility before entering project area. Cleaning would not be required for vehicles that stay on roadway.  
• All earth-moving equipment, gravel, fill, or other materials would be weed free. Onsite sand, gravel, rock, or organic material would be used where possible.  
• Invasive plant sites found during or prior to project implementation would be flagged for avoidance. Equipment, materials, or crews would not be allowed to be staged in invasive plant infested areas where there is a risk of spread to areas of low infestation.  
• Site monitoring for invasive plants would occur for one or more years after implementation. Any invasive plants located during monitoring would be treated in a manner consistent with current Plumas NF practices. |
| Wildlife protection measures       | • Nests or dens of sensitive wildlife species will be protected with a species-specific limited operating period. Use of mechanical equipment would be excluded from the LOP if it: a) is within a 100-foot buffer of existing roads, trails, and facilities or b) creates noise less than a standard truck engine for less than 4 hours duration. Existing seasonal wildlife closures of trails will be observed. |

2. **Designate the Cascade Trailhead Area as Day Use Only**

The proposed action would limit the use of the areas adjacent to the proposed trailhead and NFS road 25N48X to “day use only” and prohibit overnight camping. This action would include the area along NFS road 25N48X from the intersection with County Road 416 (Old Highway Road) to the end of NFS road 25N48X (see Figure 3 for a map of this proposed activity). Barriers would be placed along NFS road 25N48X where necessary from its intersection with County Rd 416 to the proposed trailhead to manage dispersed recreation, prevent driving off-road, and protect natural and cultural resources.
Informational and educational signs would be installed at the beginning of NFS road 25N48X and along the road to identify the area as “day use only.” Law enforcement efforts would be implemented to help enforce restrictions in the project area. Table 5 below lists design criteria under the proposed action for designating the project area as day use only.

![Map of the proposed day use area at the Cascade Trailhead area along NFS road 25N48X](image)

**Figure 3.** Map of the proposed day use area at the Cascade Trailhead area along NFS road 25N48X

Forest users looking for alternate camping areas would be directed to Spanish Creek Campground (approximately two miles away), Snake Lake Campground, and numerous dispersed camping areas through use of signs in the project area and information disseminated by the Mt. Hough Ranger District.
Table 5. Design Criteria for designating Cascade Trailhead area as day use only

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation Information</td>
<td>Notification of proposed camping closures on NFS road 25N48X, in the Cascade Trailhead Area, would be posted one year prior to closure implementation (proposed camping closures have been posted since summer of 2012).</td>
</tr>
<tr>
<td>Soil and Water Quality Resource</td>
<td>Place signs at the entrance of NFS road 25N48X indicating the project area is limited to day use only.</td>
</tr>
<tr>
<td>Resource Protection</td>
<td></td>
</tr>
<tr>
<td>Manage dispersed recreation</td>
<td>Place barriers along NFS road 25N48X where necessary to prevent vehicles from driving off road.</td>
</tr>
</tbody>
</table>

3. Trailhead Designation and Development

Four trailheads would be designated and would become a part of the NFS network. Two would be unmodified (Four Corners and Spanish Creek), one would be modified (Cascade) and one would be newly-developed (South Park). The locations of these trailheads are shown in Figure 1.

a. Cascade Trailhead Development

A trailhead area would be developed on the north side of NFS road 25N48X, approximately ½ mile from County Road 416 (Old Highway Road). A concrete vault toilet building and parking area improvements would be included within the footprint of the trailhead area. The vault concrete building and its concrete access pad would be universally accessible and approximately 14 feet by 12 feet in size. Installation of the toilet building would require use of NFS road 25N48X during construction activities.

The trailhead parking area would be constructed using gravel and/or native surface. The parking area would require removal of up to 17 trees (16 trees are 17”dbh or less; 1 tree is 23”dbh or less). A “Cascade Trailhead” entrance sign would be placed at the trailhead area. Approximately 500 feet of NFS road 25N48X would be closed beyond the proposed trailhead area for a short period of time during construction activities. Temporary safety fencing would be installed at the trailhead to provide public safety and protect resources during construction activities. Barriers would be installed around the trailhead area where necessary to protect natural and cultural resources.

Table 6. Design Criteria for Cascade Trailhead development

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Actions</th>
</tr>
</thead>
</table>
| Toilet Building Installation | - The toilet building would be installed using NFS road 25N48X and the proposed trailhead area to stage equipment and vehicles. The vault building would require excavation of 4 to 6 feet below the soil surface.  
                        | - Construction activities would occur inside the footprint of NFS road 25N48X and the proposed trailhead area.                          |
Criterion | Actions
--- | ---
The vault toilet building location would adhere to Plumas County Environmental Health standards (Plumas County Ordinance §2, 04-1002; April, 2004) for minimum required distance from the high water mark of Spanish Creek (minimum of 50 ft.).
Temporary safety fencing would be placed at the trailhead area to protect public safety and resources during construction activities.

Packing Area Tree Removal
- Up to 17 trees would be removed within the trailhead parking area (16 trees are 17" dbh or less; 1 tree is 23" dbh or less). Trees would be felled and decked and sold as forest product. Slash from tree removal would be chipped or burned.
- Trees would be felled away from cultural resource sites and equipment would avoid flagged areas.

Cultural Resource Site Protection
- “Pack it in – pack it out” signs would be installed in the trailhead area.
- The Cascade Trailhead would be moved 500 feet to the northeast. A barrier would be installed across the road to prevent motor vehicle traffic from significantly impacting Forest Service Site #05-11-56-664.

Soil and Water Quality Resource Protection
- Install barriers where necessary to prevent driving off-road in the trailhead area.

b. South Park Trailhead Development

A new South Park Trailhead would be developed on NFS land in T24N, R9E, section 2 with access approximately ¼ mile east of the western intersection of Chandler Road with State Highway 70, near the Mt. Hough Ranger Station. The trailhead parking area would be accessed from Chandler Road and would be constructed using gravel and/or native surface. The parking area would be designed to accommodate a minimum of three trucks towing trailers.

Table 7. Design criteria for South Park Trailhead development

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Actions</th>
</tr>
</thead>
</table>
| Tree Removal for Parking Area and Access Road

- Up to 20 trees would be removed to create the parking area and access to the area. Trees would be felled and decked and sold as forest product. Slash from tree removal would be chipped or burned.
- Trees would be felled away from cultural resource sites and equipment would avoid flagged areas. |
| Soil and Water Quality Resource Protection

- Install barriers where necessary to prevent driving off-road in the trailhead area. |
| Cultural Resource Site Protection

- Existing cultural resource sites would be flagged and avoided. |
4. Treatment of Invasive Plants

To prevent the spreading of invasive plants by vehicles along NFS roads and trails, the Forest Service proposes to treat currently identified priority invasive plant infestations at approximately 49 locations within the project area (see map in Appendix A). The total treated area would not exceed 75 acres. Treatment would consist of combination of chemical, mechanical, and manual treatments.

At most locations in the project area, infestations are both small and isolated; eradication would be the management goal (Table 8). The Forest Service proposes to use the following treatments for any known invasive plant infestations within the project area and for new infestations.

- Manual treatment—Techniques include digging, hand pulling, clipping, mulching, or tarping.
- Mechanical treatment—Techniques include pulling with tools, mowing, cutting, brushing, trimming, or dig with heavy equipment.
- Chemical treatment—Herbicides would be considered where manual or mechanical treatment is infeasible or ineffective.

Table 8. Current management goals for known infestations of invasive plants on NFS lands within project area

<table>
<thead>
<tr>
<th>Species (common name)</th>
<th>Proposed Initial Treatment method</th>
<th>Number of infestations</th>
<th>Acres currently identified</th>
<th>Approximate miles of road</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Centaurea solstitialis</em> (Yellow starthistle)</td>
<td>Aminopyralid - directed spray</td>
<td>9</td>
<td>4.0</td>
<td>0.5</td>
</tr>
<tr>
<td><em>Cirsium arvense</em> (Canada thistle)</td>
<td>Aminopyralid - directed spray</td>
<td>6</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td><em>Rubus discolor</em> (Himalayan blackberry)</td>
<td>Eradicate—Manual treatment with follow-up Triclopyr-directed spray</td>
<td>3</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td><em>Taeniatherum caput-medusae</em> (medusahead)</td>
<td>Control—Aminopyralid + Imazapry – directed spray</td>
<td>31</td>
<td>51.8</td>
<td>5</td>
</tr>
</tbody>
</table>

Total: 49 infestations, 56.0 acres, 5.7 miles

*56 acres of known infestations have been identified. The area analyzed for treatment, not to exceed 75 acres, allows for treating invasive plants that may have spread from these infestations.

The following herbicides are proposed for treating invasive plants:

- **Aminopyralid** (trade names include Milestone®): This herbicide provides mainly post-emergence control of many annual, biennial, and perennial invasive plant species, including brooms and yellow starthistle. It is selective and it does not injure grasses and many broadleaf species, though it can injure legumes (Fabaceae) and members of the sunflower family (Asteraceae). For some species, aminopyralid can
provide residual (pre-emergence) control, thereby reducing the need for retreatment. Within the soil, aminopyralid does not persist for long (<2 weeks) and is relatively immobile.

- **Imazapyr** (trade names include Habitat®): This herbicide provides mainly post-emergence control of annual and perennial grasses, some broadleaf species, and woody species. It is non-selective (broad spectrum), so it may injure non-target plants. For some species, imazapyr can provide residual (pre-emergence) control, thereby reducing the need for retreatment. Broadcast treatment is not proposed.

- **Triclopyr** (trade names include GarlonTM 3A, Milestone VM Plus): This herbicide provides pre- and post-emergence control of woody and broadleaf plants and resprout control as stump treatment on woody plants. It is selective and has little impact on grasses. It can reside in soils for up to 6 months. Formulations containing triclopyr butoxyethyl ester (BEE) are not being considered. Triclopyr can be used in combination with aminopyralid in a pre-mixed formulation (e.g. Milestone VM Plus).

**Table 9. Proposed Treatments for Invasive plants by species**

<table>
<thead>
<tr>
<th>Invasive plant Species</th>
<th>Proposed Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Centaurea solstitialis</em> (yellow starthistle)</td>
<td>Up to 10 acres would be treated with the herbicide aminopyralid. Follow-up treatments would include a combination of hand pulling or cutting with a hand-held string trimmer (i.e. weed whacker). Revegetation of treated sites using native seed would be considered at a site-specific level.</td>
</tr>
<tr>
<td><em>Taeniatherum caput-medusae</em> (medusahead)</td>
<td>Medusahead treatments include up to 60 acres. Imazapyr would be applied directly to individual plants during the active growing season before seed set. Aminopyralid would be applied to infestations in late summer and early fall before rains stimulate seed germination. Revegetation of treated sites using native seed would be considered at a site-specific level.</td>
</tr>
<tr>
<td><em>Cirsium arvense</em> (Canada thistle)</td>
<td>Treatment would include the application of aminopyralid on less than 1 acre. Within herbicide restriction areas treatments would be limited to manual digging and pulling. Revegetation of treated sites using native seed would be considered at a site-specific level.</td>
</tr>
<tr>
<td><em>Rubus armeniacus</em> (Himalayan blackberry)</td>
<td>Approximately 0.1 acres would be cut to ground level and canes removed for disposal to Mt. Hough District office burn piles. Root crowns may be dug out as practicable. When resprouts reach approximately 18 inches they would be sprayed with the herbicide triclopyr. Repeat treatments would occur as necessary. Revegetation of treated sites using native seed would be considered at a site-specific level.</td>
</tr>
</tbody>
</table>

Herbicides would be applied in accordance with: 1) product label directions; 2) California Department of Pesticide Regulation requirements; 3) Forest Service best management practices for water quality (USDA Forest Service 2011); and 4) Forest Service direction (FSM 2080, 2150 and 2200) and Handbook (FSH 2109.14). This project would include a Pesticide Use Spill Plan. Prior to any herbicide use, a Pesticide Use Proposal (PUP) (FS-2100-2) and safety plan (FS-6700-7) will be completed by the project lead and approved by the Responsible Official. These documents will be included in the project record. Table 9 describes the proposed herbicide treatments for each invasive species and Tables 10 – 12 describe the design criteria associated with these proposed activities.
### Table 10. Design Criteria for Invasive plant Treatments

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td>1-2 times per season for 2-5 years.</td>
</tr>
<tr>
<td><strong>Manual weed treatments</strong></td>
<td>Includes techniques such as hand pulling, digging, cutting (i.e. with a weed whacker), or covering. Would be used to treat small infestations (i.e. less than 50 plants), infestations within exclusion buffers, and as a follow-up method to herbicide or prescribed fire treatments.</td>
</tr>
<tr>
<td><strong>Herbicide treatments</strong></td>
<td>Three herbicides would be used to treat invasive plants: Aminopyralid (i.e. Milestone®, Milestone VM, Milestone VM Plus, or an equivalent formulations), Imazapyr (i.e. Arsenal®, Chopper®, Habitat®, and Stalker®), and Triclopyr (i.e. Garlon 3A™ or an equivalent formulation).</td>
</tr>
</tbody>
</table>
| **Timing of herbicide applications** | All herbicide applications would occur on weekdays to minimize impacts to recreationists.  
Yellow starthistle: Early spring through summer  
Canada thistle: Early summer and/or fall  
Himalayan blackberry: September through early November  
Medusahead: aminopyralid late summer prior to seed germination, imazapyr during active growth |
| **Wind speed limitations** | Herbicide application using a backpack sprayer would not occur when wind speed exceeds 10 miles per hour or when drift is visually observed. |
| **Herbicide guidelines**   | All applicable Best Management Practices, pesticide laws, and label restrictions would be followed to ensure human health and safety. (See Human Health Risk Assessment in the project record for more information) |
| **Aminopyralid treatments** | **Where:** upland infestations  
**Use limitations:** not within 25 ft. of perennial streams, springs, or seeps  
not within 10 ft. of seasonal wetlands when dry; seasonally flowing / intermittent channels that support a continual strip of riparian vegetation  
**Application:** selectively, using a backpack sprayer  
**Rate:** 0.03 to 0.11 acid equivalent (a.e.) pounds per acre (lbs/acre) |
| **Imazapyr treatments**    | **Where:** upland infestations  
**Use limitations:** not within 25 ft. of perennial streams, springs, or seeps  
not within 25 ft. of seasonal wetlands when dry; seasonally flowing / intermittent channels that support a continual strip of riparian vegetation  
**Application:** selectively, using a backpack sprayer  
**Rate:** 0.03 to 1.25 acid equivalent (a.e.) pounds per acre (lbs/acre) |
### Table 11. Design Criteria for herbicide use by resource

<table>
<thead>
<tr>
<th>Resource</th>
<th>Criterion</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants</td>
<td>If any Special Status Plant Species (SSPS) are detected in the project area, no broadcast herbicide application will occur within 100 feet and no directed spray or select application will occur within 25 ft of SSPS. Modifications may be made with consultation with a staff botanist.</td>
<td>To ensure that Special Status Plant Species are protected</td>
</tr>
<tr>
<td>Recreation</td>
<td>For herbicide treatment within 100 ft of recreation trailheads, dispersed camping sites, and trails, cautionary notice signs will be posted at these areas prior to treatments. Herbicide application will occur on weekdays to minimize impacts to recreationists.</td>
<td>To inform and to minimize potential adverse effects on forest users</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>Local Native American Tribes will be consulted on the entire project area to allow tribal members an opportunity to provide input. Individual plants identified by tribes will be protected in the same manner as Special Status Plant Species (see below).</td>
<td>To ensure that plants in traditional gathering areas are protected</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>Ground disturbing actions (e.g. weed wrenching, grubbing with a shovel, use of skid-steer) will not be used in known cultural resource sites, unless there is on-site monitoring by a staff archeologist or the technique has been agreed to by a staff archeologist who has determined that the technique will have no effect on cultural resources.</td>
<td>To ensure that cultural resources are protected</td>
</tr>
<tr>
<td>Wildlife - Terrestrial</td>
<td>Sensitive Wildlife Species: Nests or dens of sensitive wildlife species will be protected with a species-specific limited operating period. Use of mechanical equipment would be excluded from the LOP if it is: a) within 100-foot buffer of existing roads, trails, and facilities or b) creates noise less than a standard truck engine for less than 4 hours duration. Existing seasonal wildlife closures of trails will be observed.</td>
<td>To ensure that special status wildlife species are protected</td>
</tr>
</tbody>
</table>
Resource | Criterion | Objective
--- | --- | ---
Wildlife - Aquatic | Sensitive Aquatic species (e.g. frogs) presence will be protected with a 500-foot radius buffer where treatment will be limited to manual treatment or select herbicide application. | To ensure that special status wildlife species are protected and Sierra Nevada Forest Plan Amendment Riparian Conservation objectives are met.
Hydrology / Soils | Herbicide use buffers have been established for streams and other water bodies (listed below in Table 12). Buffers vary by herbicide and application method. Tank mixtures would apply the largest buffer as indicated for any of the herbicides in the mixture. | To minimize risk of surface water contamination in order to protect water quality and habitat for aquatic organisms.

### Table 12. Stream buffers for herbicide application

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Stream Class</th>
<th>Stream Class</th>
<th>Stream Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIVE WATER</td>
<td>NO LIVE WATER</td>
<td>DRY WASHES</td>
</tr>
<tr>
<td></td>
<td>(Perennial streams, lakes, ponds, springs, seeps, fens, bogs)</td>
<td>(Seasonal wetlands when dry; seasonally flowing / intermittent channels that support a continual strip of riparian vegetation)</td>
<td>(without riparian vegetation)</td>
</tr>
<tr>
<td>Aminopyralid</td>
<td>25 ft</td>
<td>10 ft</td>
<td>No buffer required, unless otherwise specified by project design criteria.</td>
</tr>
<tr>
<td>Imazapyr</td>
<td>25 ft</td>
<td>25 ft</td>
<td></td>
</tr>
<tr>
<td>Triclopyr-TEA</td>
<td>100 ft</td>
<td>50 ft</td>
<td></td>
</tr>
</tbody>
</table>

Buffer distances are measured from the water’s edge. Roadside ditches will be treated the same as the water body type they resemble.
Toxicity, soil mobility, and runoff potential were considered in selecting buffer distances and application methods allowed. In some instances, buffer distances are greater than those provided in the product label, in order to comply with USFS Best Management Practices for Water Quality.

**Alternative B - No Action**

Under the No Action alternative, current management plans would continue to guide management of the project area. None of the proposed project activities would occur. Unauthorized, user-created trails would persist and could proliferate over time. No trails would be built, reconstructed, or maintained, so the existing risk of erosion would persist. The poorly-placed trails and stream crossings would persist and resource damage would continue to occur due to trail-generated sediment. No directional signs or trail etiquette signs would be installed. Hikers, cyclists, and equestrians, would continue the unauthorized use of the existing, non-system trails. This use would continue without the benefit of trail improvements and signage to reduce the potential for conflicts among users on these non-motorized trails. Lack of signage has been shown to contribute to use conflict because individuals and groups have no reference available to guide appropriate trail use ethics and to provide users with appropriate expectations regarding the other types of users they may encounter while on the trails. Under this alternative, no trailheads would be designated or modified. The proposed South Park Trailhead would not be constructed, so there would continue to be a lack of suitable parking for trucks towing trailers. The Cascade Trailhead area would not be modified, no
toilet would be installed, and natural and cultural resources would remain unprotected. The Cascade Trailhead area would remain open to dispersed camping and would not be restricted to day use only. No roads and trails would be improved, relocated, or obliterated to minimize resource damage. Under this alternative, no herbicides would be used to control the spread of invasive plants, so the existing infestations known to occur at 49 locations would remain uncontrolled and would continue to spread throughout the project area.

**Alternatives Considered but Eliminated from Detailed Study**

**Alternative C – Motorized Trail on Grizzly Ridge**

The Sierra Access Coalition proposed the inclusion of a 6.2 mile motorized trail along Grizzly Ridge. This trail would provide motorized trail users with scenic views and would tie the motorized routes on Mt. Hough to adjoining areas on the Forest. There are several land allocations in this area that must be considered during project planning, including an inventoried roadless area, a semi-primitive non-motorized area, and a proposed special interest area for botanical resources at Brady’s Camp. Determination of the appropriate location for the Grizzly Ridge Trail must take into consideration these land allocations. This detailed analysis requires field surveys and additional time. Field surveys cannot be completed at this time because snow cover prohibits access to the site. With the exception of this requested trail on Grizzly Ridge, all of the other trails proposed for the MHSP Trails Project have been surveyed completely, allowing for the required analysis of environmental effects. The inclusion of the Grizzly Ridge trail in this environmental assessment is not timely because land allocation complexities exist and restricted seasonal access to the site limits the ability to complete field surveys. The Responsible Official has therefore decided to defer the planning, analysis, and decision on the Grizzly Ridge trail to another environmental assessment that is scheduled to begin later this year.

**Alternative D – Allow Motorized Use on South Park Trails**

The Sierra Access Coalition requested the analysis of an alternative that allows motorized users on all trails, including the trails in the South Park area that are designated as non-motorized trails in the proposed action. This alternative would fail to meet Purpose 1: Provide a variety of trail use opportunities (PNF LRMP, page 4-24); and Objective 2: Provide a balance between non-motorized and motorized trail opportunities because we would fail to address the need for non-motorized trails if we allowed motorized users on all proposed trails. The Mt. Hough Ranger District currently has 36.2 miles of motorized system trails and no non-motorized system trails within five miles of Quincy. Because an explicit purpose of this project is to balance the needs of non-motorized and motorized trail users, a detailed analysis of an alternative that would allow motorized use on all of the proposed non-motorized trails was not completed. Furthermore, the existing trails in the South Park area were created by users and were therefore not designed to meet any standards and guidelines for NFS system trails.
Purpose 2 is to construct new trails according to management area direction while providing utility and resource protection (PNF LRMP page 4-24). Our interdisciplinary team has evaluated the trails in the South Park area and determined which trails would be eligible to meet minimum standards and guidelines for non-motorized NFS system trails. If the South Park trails were designed to accommodate motorized users, the trails would need to be wider (12” width and 36” clearing is required for non-motorized trails, 12” width and 36” clearing for single track, motorized trails, and 60” width and 60” clearing for quad trails) and the cost of implementation would be greater (approximate cost for trail modification is $1000/mile for non-motorized trails, $2000/mile for single track trails, and $10,000/mile for quad trails). In summary, an alternative in which motorized use would be allowed in the South Park proposed trail network was not analyzed because an explicit purpose of this project is to balance non-motorized and motorized trail opportunities, because motorized trails already exist and are being proposed in this project, and because of the higher costs associated with planning and implementing additional motorized trails.

Alternative E and F – Designation of Non-motorized trails for Single Uses:

**Designation of the Cascade Trail as Hiker Only**

**Designation of Equestrian Only Trails in the South Park Area**

The Sierra Access Coalition requested the analysis of an alternative that restricted the Cascade Trail to hikers only (no other non-motorized travel would be allowed including bicycles or horses). Because this trail is heavily used by hikers and young families, the Sierra Access Coalition and several other individuals suggested that user’s experience would be safer if the trail was reserved for hikers only. They are concerned that bicycles travel too fast and create a safety hazard on this narrow trail for hikers. Several equestrians and equestrian organizations requested that the South Park Trails be designated explicitly for equestrians. These alternatives were not considered in detail for several reasons. Designation of trails for single uses would fail to meet Purpose 1: Provide a variety of trail use opportunities (PNF, LRMP, page 4-24) because only a single use would be allowed. The proposed trail network intends to provide increased recreation opportunities for a variety of non-motorized and motorized users. Designating the Cascade Trail as a hiker-only trail would reduce the available trail miles for cyclists and equestrians. Likewise, designating trails specifically for equestrians would reduce the available trail miles for hikers and cyclists. Also, the proposed action would include widening sections of the Cascade Trail that are currently narrow and potentially hazardous. This action would improve safety conditions on the Cascade Trail and would better accommodate the proposed, mixed, non-motorized use. Finally, single use trail designations violate six of the twelve principles for minimizing conflicts identified in a study on planning multiple use trails (Moore 1994). Those violations are listed here:

1. Recognize conflict as goal interference: single use designations treat conflict as an inherent incompatibility among different trail activities rather than goal interference attributed to another’s behavior.
2. Provide adequate trail opportunities: single use trail designations limit trail opportunities for all users.

3. Understand user needs: Users have expressed a strong desire for loop options and a variety of available trail experiences. Single use designations would reduce the opportunity for loops and diversity of trail experience due to the reduction of available trails for each use type.

4. Promote trail etiquette: single use designation does not promote respect among users or responsible trail behavior, such as controlling speed and yielding to other uses.

5. Encourage positive interaction among different users: single use designation does the opposite; it encourages users to segregate and not interact with users of different use groups.

6. Favor “light-handed management”: Intrusive design and coercive management are not compatible with high quality trail experiences.

Mitigations

In response to public comments on the proposal and internal analysis, mitigation measures were developed to reduce some of the potential impacts the proposed action may cause.

The watershed analysis showed that some of the watersheds are approaching the threshold of concern (see Watershed and Soils section). Therefore, to mitigate these concerns, mitigation measures (road improvements and road decommissioning) would be employed to address problematic segments of both NFS and non-system roads and trails. Currently, repetitive routes exist that have undesirable environmental impacts and contribute little recreation and transportation value to the proposed trail system. The consolidation of select routes in favor of a well-designed network is consistent with PNF LRMP direction and with the purpose and need of providing a quality trail system while providing resource protection.

The Plumas National Forest goals and policies, as outlined in the PNF LRMP (4-10) include:

- Determine the most efficient routes between locations served by multiple routes and confine higher-level maintenance thereto.
- Reduce new road impact by use of former roadways and disturbed areas and by revegetation and other sediment control where appropriate.
- Eliminate, close, or obliterate unneeded roads.
- Maintain, reconstruct, and construct other facilities necessary to support Forest activities in the most cost-efficient manner, compatible with resource protection needs.
Furthermore, the SNFPA FSEIS ROD standard and guidelines direct the Forest to:

100. Maintain and restore the hydrologic connectivity of streams, meadows, wetlands, and other special aquatic features by identifying roads and trails that intercept, divert, or disrupt natural surface and subsurface water flow paths. Implement corrective actions where necessary to restore connectivity. (page 63)

116. Identify roads, trails, OHV trails and staging areas...during landscape analysis. Identify conditions that degrade water quality or habitat for aquatic and riparian-dependent species. At the project level, evaluate and consider actions to ensure consistency with standards and guidelines or desired conditions. (page 65)

Roads are the largest single human-caused source of sedimentation and habitat degradation within the project area (Figure 4). Improperly constructed or unmaintained roads may restrict aquatic organism passage and transport sediment to streams and riparian areas, thus degrading water quality, impairing aquatic habitat and overall watershed health.

![Figure 4](image.png)

**Figure 4.** This non-system road (1 mile east of the proposed South Park trailhead) exhibits egregious erosion as a result of a poorly-drained road surface that concentrates runoff. This segment of road is proposed for obliteration.

Purpose 2 of this project is to construct new trails according to management area direction while providing utility and resource protection (PNF LRMP page 4-24). The desired condition is a trail system that provides safe public access and recreational travel and meets future resource management needs, while reducing adverse water quality and ecological impacts associated with public access. Creating a trail system that is appropriate on the landscape includes creation and reconstruction of existing routes in appropriate locations as well as the elimination of trails and roads that are causing resource damage.
Poorly-located roads would be relocated to stable areas. Unneeded roads would be eliminated, closed, or obliterated in accordance with the PNF LRMP (USDA 1988), SNFPA FSEIS (USDA 2004), and the Plumas National Forest Public Motorized Travel Management Final Environmental Impact Statement (TMFEIS) (August 2010) and Record of Decision (ROD) (September 2010). Roads that are causing a high level of resource damage would be restored and improved or decommissioned and obliterated. Actions would range from physically blocking routes with boulders and scattering available woody material to full decommissioning including complete obliteration and supplemental planting of riparian vegetation at stream crossings. A total of 4.75 miles of roads would be improved and 3.8 miles of poorly-located, actively-eroding road and trail segments would be closed or obliterated (Table 13). See Appendix A for a map of all proposed water quality improvements.

Table 13. Roads and trails proposed for obliteration or improvement to address watershed concerns in the project area

<table>
<thead>
<tr>
<th>Watershed</th>
<th>Obliteration</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Route ID</td>
<td>Miles</td>
</tr>
<tr>
<td>Dry Taylor Creek</td>
<td>25N18E ext.</td>
<td>1.0</td>
</tr>
<tr>
<td>Berry Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blackhawk Creek</td>
<td>PC416 non-sys</td>
<td>0.10</td>
</tr>
<tr>
<td>Gilson Creek</td>
<td>25N33Y ext.</td>
<td>0.15</td>
</tr>
<tr>
<td>Taylor Creek</td>
<td>4 routes</td>
<td>2.4</td>
</tr>
<tr>
<td>Tollgate Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cashman Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montgomery Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Park</td>
<td>South Park #3 re-route</td>
<td>0.15</td>
</tr>
<tr>
<td>Massack Creek</td>
<td>25N41/A, 24N20Y</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td><strong>3.8</strong></td>
</tr>
</tbody>
</table>

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

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

Affected Environment

Trails and Trailheads

There is an increased demand on the forest for suitable recreation opportunities. Recreation opportunities for OHV riding, hiking, mountain biking, and horseback riding are a potential source of economic income for Plumas County. The Mt. Hough Ranger District lacks quality motorized and non-motorized trail networks located in close proximity to Quincy. Existing, user-created trails cannot be maintained with federal dollars because they are not part of the NFS Trail System.

Although the Mt. Hough Ranger District has approximately 110 miles of existing non-motorized system trails, there are no existing non-motorized system trails within a five mile radius of Quincy. The existing, unauthorized South Park Trail network is currently frequented by mainly local forest visitors, including hikers, equestrians, and mountain bikers. The portion of the Cascade Trail that leaves from the end of NFS road 25N48X is approximately 2.5 miles in length and is a popular trail for forest visitors including hikers and mountain bikers due to its gradual trail elevation gain, close proximity to Spanish Creek, and ease of access from the town of Quincy. Most of the proposed South Park Trail network is also currently used by hikers, equestrians, and mountain bikers. The portion of the Cascade Trail along Spanish Creek (approximately 2.5 miles) is by far the busiest section of this existing, unauthorized non-motorized trail network.

The existing, unauthorized trails in the South Park area are sub-standard and in need of route definition and safety upgrades. Forest Service maintenance dollars cannot normally be spent on these trails because these trails are not part of the NFS trail system. The condition of the Cascade Trail along Spanish Creek has deteriorated over the last several years; in some sections, the width of the trail is narrow and poses a hazard.

Currently, there are no designated trailheads for motorized or non-motorized trails within the project area. Parking to access the South Park Trail network is inadequate, particularly for equestrians who need a large area to park trailers. Currently, hikers and equestrians park at existing pull-outs along Chandler Road, which are very inadequate in number, size and location.

Because the user-created, motorized and non-motorized trails are not system trails, signing in the entire project area is non-existent on trails and at trailheads. There are no directional signs on trails indicating where users should go. None of these trails currently appear on Forest Service maps to assist users or visitors in navigation. Currently there is no information available for users about the recreation opportunities available in the project area (although currently unauthorized), location of visitor services, and what types of conditions and experiences visitors might expect.

These existing conditions contribute to trail users having no sense of how to prepare for their experience, what types of users they might encounter on the trail, and what they
might expect while recreating. The lack of adequate signage could also contribute to potential user conflicts if mountain bikers are not aware the current non-system trails are used by multiple users including equestrians and hikers. Without maps and trail signs, it is easy for users to become lost on trails. Users unfamiliar with the area are likely to be unsuccessful in finding trailheads and trails, despite the location of these trail opportunities in close proximity to Quincy.

**Visitor Use**

Current motorized and non-motorized recreation trail activities in the MHSP Trails Project area occur on a network of user-created, non-system trails in the South Park and Mt. Hough trail networks. Hiking, off-highway vehicle (OHV) use, biking, horseback riding, and dispersed camping are the main visitor activities that occur within the MHSP Trails project area. Other recreational activities include relaxing, wildlife viewing, picnicking, hunting, fishing, recreational shooting, Frisbee golf, Geocaching, gathering forest products, and driving for pleasure.

The Plumas National Forest had an estimated 667,600 visitors during fiscal year 2005 based on results from the National Visitor Use Monitoring (NVUM) survey that was conducted from October 2004 through September 2005 (USDA 2006). The NVUM survey was designed to assess existing recreation demand on the Forest by surveying visitors on what they did during their visit, and visitors could check multiple activities. The study resulted in two categories of visitor use, activities visitors participated in and the main activities of visitors. For example, 45.7 percent of the visitors were surveyed as participating in hiking/walking while 14 percent of visitors surveyed indicated it was their main activity (Table 14).

**Table 14.** Plumas National Forest visits by participation and main activity.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Participating (%)</th>
<th>Main Activity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxing</td>
<td>77.2</td>
<td>11.3</td>
</tr>
<tr>
<td>Viewing Natural Features</td>
<td>75.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Viewing Wildlife</td>
<td>60.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Hiking/Walking</td>
<td>45.7</td>
<td>14.1</td>
</tr>
<tr>
<td>Fishing</td>
<td>34.1</td>
<td>27.5</td>
</tr>
<tr>
<td>Motorized Water Activities</td>
<td>32.9</td>
<td>11.1</td>
</tr>
<tr>
<td>Driving for Pleasure</td>
<td>26.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Other Non-motorized</td>
<td>15.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Developed Camping</td>
<td>11.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Snowmobiling</td>
<td>9.8</td>
<td>9.0</td>
</tr>
<tr>
<td>Visiting Historic Sites</td>
<td>9.8</td>
<td>0.3</td>
</tr>
<tr>
<td>Some Other Activity</td>
<td>8.7</td>
<td>5.2</td>
</tr>
<tr>
<td>Picnicking</td>
<td>8.7</td>
<td>1.5</td>
</tr>
<tr>
<td>Nature Study</td>
<td>7.2</td>
<td>.1</td>
</tr>
<tr>
<td>Gathering Forest Products</td>
<td>5.7</td>
<td>2.9</td>
</tr>
<tr>
<td>Non-motorized Water</td>
<td>4.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Primitive Camping</td>
<td>2.7</td>
<td>0.1</td>
</tr>
<tr>
<td>Skiing</td>
<td>2.4</td>
<td>1.7</td>
</tr>
<tr>
<td>Activity</td>
<td>Participating (%)</td>
<td>Main Activity (%)</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Off-highway vehicle (OHV) use</td>
<td>1.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Backpacking</td>
<td>1.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Bicycling</td>
<td>1.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Resort Use</td>
<td>1.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Hunting</td>
<td>0.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Horseback Riding</td>
<td>0.3</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Based on Table 14 above, of the reported 667,600 visits to the Plumas National Forest in fiscal year 2005, there were approximately 300,000 visitors who participated in hiking/walking, 18,000 visitors who participated in primitive camping, 10,700 visitors who participated in OHV riding, 8,700 visitors who participated in bicycling and 2,000 visitors who participated in horseback riding. As this relates to activities along trails, NVUM surveys indicate that hiking/walking is the most common recreation activity that takes place on the Forest. The next most common recreation activity is OHV riding, then bicycling and horseback riding in that order. It is important to note that the MHSP Trails project area is a subset of the Forest. Visitor use in the project area may differ from the patterns detected in this survey.

In general, current visitor use is low on the Mt. Hough and South Park non-system trails. Use of the existing South Park trails is particularly low when compared to non-motorized trails on other heavily-used National Forests where there are designated “single use” trails and “odd day” designations for mountain bikes on some trails. The average number of weekend visitor encounters on the popular 2.5 miles of the Cascade Trail along Spanish Creek is 10-20 visitor encounters (MHRD Recreation Use Data, 2012). The average number of weekend visitor encounters on the South Park trail network (excluding the 2.5 miles of the Cascade Trail along Spanish Creek) is 0-2 encounters per visit (MHRD Recreation Use Data, 2012).

Dispersed camping occurs in the vicinity of 25N48X and the Cascade Trailhead. There are approximately ten to twelve dispersed campsites in that area. No sanitation facilities are available in the vicinity of the Cascade Trailhead and this has caused unsanitary conditions for visitors. Dispersed camping also occurs along Spanish Creek off of NFS road 25N33Y. Although there are no developed campgrounds in the MHSP Trails Project area, there are numerous developed campgrounds within a fifteen minute drive of Quincy which have sanitation facilities including: Snake Lake, Rock Creek, Deanes Valley, Meadow Camp, and Red Bridge Campgrounds. These campgrounds are free of charge and are minimally developed with fire rings, picnic tables, and sanitation facilities.

**Use Conflict**

Recreation experiences are affected by many subjective as well as situational factors: the conditions encountered at an area, users’ expectations, and any discrepancies between what users expect and what they actually find or experience (Peterson 1974; Schreyer and Roggenbuck 1978; Todd and Graefe 1989).
Use conflict can be generally characterized as either direct or indirect. Direct use conflict is described as an experience where users of either the same or different use groups (hiker/pedestrians, bicyclists, equestrians) come into direct contact with each other while recreating and one or both parties experience conflict as a result of this encounter. Direct conflict does not necessarily mean physical contact, but may result from a user bias against another use group, needing to yield or otherwise allow others to pass by, becoming startled or surprised by users coming from an opposite direction or from behind, and in rare cases from actual contact between users.

Indirect use conflict tends to result from user perception and beliefs about other use groups, and from user expectation of the experience they desire while recreating. For example, an individual hiker may have a negative bias or impression towards equestrian users, and as a result may have a degraded or negative experience when seeing horse manure on a trail. Another example is that an individual equestrian may perceive mountain bikers as a safety hazard and may have a negative experience due to the anticipation of contact with a bike even when no cyclists are encountered.

Use conflict is compounded by different use types and expectations. Individual trail users on non-motorized trails may encounter other types of users, as hikers, cyclists, and equestrians will be sharing the same trails in the project area. These shared uses are likely to have different expectations for the recreation experience they might encounter, and there is currently no signage to indicate recommended use and trail etiquette to help set appropriate expectations and trail use ethics for the area.

**Recreation Opportunity Spectrum (ROS)**

Recreational opportunities on the Plumas National Forest are classified under the Recreation Opportunity Spectrum (ROS). ROS is one of the indicators used to measure beneficial or adverse effects on recreation. There are a total of seven ROS classes and subclasses; however, there are three ROS classes within the project area which overlap with proposed trails. Listed below are the three ROS classes from the PNF LRMP, Appendix R-2, p. 4-106 considered for this project and their descriptions:

1. **Semi-Primitive Non-Motorized (SPNM)** ROS Class is a predominantly unmodified and natural environment of a size and location that provides a good to moderate opportunity for isolation from sights and sounds of man. The area is typically 2,500 acres or more and at least ½ mile from motorized use.

2. **Roaded Modified (RM)** ROS Class is the general resource management area of the Forest, and other than trails and trailheads, where virtually no improvements are present. Users experience low interactions.

3. **Rural (R)** ROS Class is a substantially modified natural environment. Sights and sounds of man are evident. Renewable resource modification and utilization practices enhance specific recreation activities or provide the protection of vegetative soil cover.
The Mt. Hough Trails motorized network falls within the Roaded Modified (RM) ROS class. The South Park Trails non-motorized network falls under the Rural (R) ROS class.

Although the Semi-Primitive Non-Motorized (SPNM) ROS Class does not overlap with any proposed trails, it is adjacent to the Grizzly Ridge 1 motorized trail west of Grizzly Ridge. Forest Service policy requires that roadless areas (including the Grizzly Peak SPNM adjacent to the MHSP Trails Project area) be analyzed when projects may affect the wilderness characteristics of these areas, since these roadless areas have the potential to be designated as wilderness. Five wilderness characteristics must be considered when activities have the potential to affect wilderness character. Four of these wilderness characteristics are from Section 2 (c) of the Wilderness Act of 1964: untrammeled, natural, undeveloped, and outstanding opportunities for solitude or a primitive and unconfined type of recreation. There is a fifth quality, the unique qualities of a particular wilderness area, which is used to monitor wilderness character although it is not from the Wilderness Act.

Environmental Consequences

Alternative A (Proposed Action): Direct, Indirect, and Cumulative Impacts

Direct, indirect, and cumulative impacts from trail development and watershed improvement mitigations

The proposed action would add 16.6 miles of non-motorized trails and 35 miles of motorized trails (21.4 miles of singletrack, 11 miles of quad trails, and 2.6 miles open to all vehicles) to the National Forest System (NFS) trail network on the Mt. Hough Ranger District. This alternative would have overall beneficial direct and indirect effects on recreation opportunities in the MHSP Trails Project area, as well as the Mt. Hough Ranger District recreation opportunities as a whole by increasing motorized and non-motorized trail opportunities available.

Improving 4.75 miles of routes proposed as mitigation measures to the proposed action would have a beneficial impact on recreation access for motorized and non-motorized recreation in the MHSP Trails Project area because existing maintenance on these routes would be improved. Obliterating 3.8 miles of poorly-located, actively-eroding road and trail segments would not have substantial direct or indirect impacts on motorized or non-motorized recreation opportunities because a well-designed trail network would be created by implementing the proposed action. Impacts to recreation opportunities would be negligible since the routes proposed for obliteration are mostly dead-end routes that contribute little recreation and transportation value. One route ties through to the Grizzly Ridge 1 route and would eliminate a loop opportunity for quad users. Closing off access to these 3.8 miles of routes would effectively close off vehicular woodcutting access along these routes. However, the impact to wood cutters is negligible considering the forest has over 4,118 miles of system roads available to passenger vehicles for woodcutting access.
The placement of trail signs at trailheads and trail intersections would have beneficial impacts to recreation trail users by helping users navigate the trail network and notifying users of trail etiquette. This would have positive direct and indirect impacts on minimizing user conflict since users would be more alert that multiple uses would be occurring on trails and more aware of user etiquette for all uses.

There may be minor short-term negative impacts on users where construction activities on both motorized and non-motorized trails would require closure of trails for safety precautions. Trail closures for rehabilitation activities may affect 10.7 miles of motorized and 2.2 miles of non-motorized trails. This would only be a short term inconvenience to users and long-term benefits would outweigh short-term impacts because trail conditions would be improved over time. It is not anticipated minor rehabilitation activities would require trail closures or inconvenience users.

**Motorized Trail Development – Direct and Indirect Impacts**

The Plumas National Forest Public Motorized Travel Management Final Environmental Impact Statement (TMFEIS) only designated 3.5 miles of singletrack motorized trails on the Mt. Hough Ranger District. Adding 21.4 miles of singletrack motorized trails would increase motorized singletrack opportunities by over 600 percent on the Mt. Hough Ranger District for a total of 24.9 miles of motorized singletrack trails. This change would result in a significant beneficial impact on this type of motorized opportunity. The 21.4 miles of additional singletrack motorized trails would also be available for hiking, biking, and equestrians, thereby having positive effects on non-motorized recreation opportunities by increasing opportunities available to those users.

Currently there are 20 miles designated as quad trails on the Mt. Hough Ranger District. Adding 11 miles of quad trails would increase designated quad trails available to users by 55 percent resulting in 31 total miles available. This is also substantial beneficial impact to the number quad trails available for use.

Designation of the 21.4 miles of motorized singletrack, 11 miles of quad trails, and 2.6 miles of trail open to all vehicles would have beneficial direct impacts on the condition of all these motorized trails since maintenance dollars would be authorized to maintain, upgrade, and make trails more sustainable. This would result in beneficial indirect impacts for trail users because existing unsafe and substandard trail conditions would be improved.

Motorized trail development would follow project design criteria for trail development listed in Table 3 in the proposed action. Using trail design parameter guidelines for quad trails and singletrack identified in Forest Service Handbook (FSH) 2309.18, Section 23.13., existing substandard trail conditions would improve. Widening tread widths and clearing limits would have beneficial impacts on future trail safety and help improve sight distances, thereby helping to minimize future conflicts on trails in the Mt. Hough trail network. This design feature in combination with the trail signing design feature would have overall benefits to motorized recreation opportunities by minimizing future conflicts and improving visitor satisfaction.
It is anticipated that user conflicts between motorized and non-motorized uses on the Mt. Hough trail network would be minimal. Project design criteria for trail design, signing, and monitoring would help to minimize conflicts. Trail use would be monitored with exit surveys. If user conflicts are substantial, mitigation measures would be proposed. Shared use of singletrack trails between motorcycles and mountain bikers is how the Downieville Downhill Trail on the Tahoe National Forest is managed.

The Grizzly Ridge 1 trail adjacent to the Semi-Primitive Non-Motorized area of Grizzly Ridge, would not negatively impact the Semi-Primitive Non-Motorized area since it is outside of the “influence” zone of this area. There is a ridge line that lies between the Semi-Primitive Non-Motorized area and the Grizzly Ridge 1 trail which would protect opportunities for solitude since a motorcycle would likely not be heard from within the Semi-Primitive Non-motorized area. None of the other five wilderness characteristics of the Semi-Primitive Non-Motorized area would be negatively impacted (untrammeled, natural, undeveloped, or unique qualities of the Semi-Primitive Non-Motorized area).

**Non-motorized Trail Development - Direct and Indirect Impacts**

Because of the lack of non-motorized trail opportunities available near Quincy, adding 16.6 miles of non-motorized trail opportunities for hiking, biking, and equestrians would have beneficial impacts on non-motorized opportunities available on the Mt. Hough Ranger District. Currently, the Mt. Hough Ranger District has approximately 110 miles of NFS system trails. Adding 16.6 miles of trails would increase non-motorized trail opportunities on the Mt. Hough Ranger District by over 15 percent. Since there are no non-motorized NFS System trails within a five mile radius of Quincy, adding 16.6 miles of trails would have substantial beneficial effects on non-motorized recreation trail opportunities within that radius.

Designation of the 16.6 miles of non-motorized singletrack trails would have the same beneficial direct impacts on the condition of these trails as benefits to adding motorized trails. Maintenance dollars would be authorized to maintain, upgrade, and make trails more sustainable. Signs would be placed at intersections to help users navigate trails. This would result in positive indirect impacts to recreation trail opportunities by making the trails safer for user travel.

Non-motorized trail development would follow project design criteria for trail development listed in Table 3 in the proposed action. Trail design parameter guidelines for ‘pack and saddle’ identified in Forest Service Handbook (FSH) 2309.18, Section 23.13 allows for the widest tread width and clearing limits of all three design uses that could occur on the non-motorized trails. All non-motorized trails would be managed as multiple-use trails shared between hikers, mountain bikers, and equestrians.

Implementing design guidelines for wider tread widths and clearing limits would have beneficial impacts on future trail safety since current trail conditions are below current design limits for tread width and clearing limits for both equestrian use and mountain bike use. Where implementing design parameter guidelines require that trails be widened to meet minimum design parameters, this may in some cases have a slight
negative indirect effect on increasing mountain bike and motor bike speeds. However, by widening trails and clearing vegetation to minimum design parameter guidelines, sight distances would be improved. This would have overall beneficial impacts on trail safety, and likely help to minimize user conflicts, even with the anticipated effect of slightly increasing mountain bike speeds or motor bike speeds.

Proper trail design, layout and maintenance are essential for user safety and resource protection and are important contributors to user satisfaction as well. Proper trail design can be used to encourage trail users to behave in more appropriate ways. Influencing proper behavior through the subtleties of design is preferable and often more effective than attempting to do so after the fact through education programs or regulation (Moore, 1994).

In combination, the two project design criteria for trail signing and trail design guidelines would have beneficial impacts on recreation opportunities for equestrians, hikers, and mountain bikers. These design criteria would help to minimize future conflicts between user groups on the South Park trail network, improve overall trail conditions, and improve visitor satisfaction. If monitoring indicates that there are substantial conflicts between user groups, then management actions would help alleviate future potential conflicts.

Designation of non-motorized trails for multiple uses may have short-term negative impacts on experiences of equestrians and hikers who already have a negative perception of mountain bikes on trails. However, long term impacts on these trail users would likely be minimized by implementing project design criteria for signing, trail design, and monitoring because it is likely that actual negative encounters in the future would be minimal.

User conflicts were addressed in a study that evaluated a shared trail between mountain bikers and hikers (Cessford, 2003). This study found that many of the social conflict issues surrounding mountain bikes were based on perceptions about meeting bikes rather than actually encountering them (Cessford, 2003). Although hikers in this study had a negative bias towards mountain bikers and anticipated that encounters would be negative, exit surveys showed that when hikers actually encountered mountain bikers, the encounters were mostly positive (Cessford, 2003). Based on this study, it is likely that shared users on the South Park trails would have positive direct encounters even though preconceptions about encounters may be negative.

The proposed action alternative would have the direct effect of reducing the potential for use conflict through trail design, modification, and signage. Consistent with current trail management guidance, trails in the project area would be managed as shared-use, non-motorized. Key to mitigating use conflict is appropriate signage for each trail, and this alternative includes signage throughout the project area. Trail signs would inform all users of proper trail etiquette to encourage proper sharing of the trails. (i.e. mountain bikers yield to hikers and equestrians).
Overall use is anticipated to increase over time on the South Park trail network; however since current use is relatively low, the proposed action provides 16.6 miles of a sustainable trail network which can safely accommodate future use. The proposed South Park trail network allows for increased use since visitor use would be spread out by three trail access points and 16.6 miles of trail and loop opportunities.

**Trail development and Watershed Improvements – Cumulative Impacts**

Trail development for motorized and non-motorized trails in the proposed action for the MHSP Trails Project would not have any adverse cumulative impacts on recreation opportunities, recreation users, or user safety. Route improvements and obliteration proposed as mitigation measures to the proposed action would also not have any adverse cumulative impacts on recreation opportunities. It is anticipated that visitor satisfaction would improve over time from trail development as trail conditions improve and trail signing is implemented.

**Direct, indirect, and cumulative impacts from designation of the Cascade Trailhead area as day use only**

The proposed action would limit the use of the areas adjacent to the proposed Cascade Trailhead and NFS road 25N48X to “day use only” and prohibit overnight camping in those areas. This alternative would have beneficial health and safety impacts to the Cascade Trailhead area because camping would not be allowed and a sanitation facility would serve the trailhead area and day use visitors. Additional sanitation facilities for overnight campers would therefore not be necessary. Designation of a day use only area maintains ROS opportunities of the project area by preserving a minimally managed area where trails, roads, and trailheads are the only visible improvements in an area (USDA 1988; 4-106, Appendix R-2).

Limiting the project area to day use would likely have minor negative impacts on recreation users who want to use the area for overnight camping, but project design criteria developed for signing would minimize impacts to overnight visitors. Signs would be posted at the entrance to NFS road 25N48X and at the Cascade Trailhead to notify visitors of alternate camping areas. Project design criteria for trail are listed in Table 5 in the proposed action. In addition, signs were posted during 2012 notifying visitors of the proposal to close off overnight camping in 2013.

Visitors that would be displaced from the day use designation at the Cascade Trailhead would be able to have a similar primitive camping experience at numerous other developed campgrounds within a fifteen minute drive of Quincy. These campgrounds have sanitation facilities, fire rings, picnic tables, and are free of charge. Minimally developed campgrounds for displaced campers in close proximity to Quincy include: Snake Lake, Rock Creek, Deanes Valley, Meadow Camp, and Red Bridge Campgrounds.

There would be no adverse cumulative impacts on recreation from implementing the day use only designation under the proposed action. It is likely that there would be overall beneficial cumulative impacts on recreation over time as health and safety conditions improve in the Cascade Trailhead area.
Direct, indirect, and cumulative impacts from trailhead development

The proposed action would implement trailhead development for two non-motorized trailheads and would designate a third non-motorized trailhead and one motorized trailhead as official components of the trail network. Trailhead development at the two trailheads (Cascade Trailhead and South Park Trailhead) would have overall beneficial direct and indirect impacts on recreation opportunities in the MHSP Trails Project area and Mt. Hough Ranger District by providing improved facilities for trail access. Implementing trailhead development under the proposed action would achieve desired conditions identified in the PNF LRMP of “improving and expanding developed facilities and trails to meet demand while reducing unit costs and protecting other resources” (USDA 1988; p. 4-3, Forest Goals and Policies).

Trailhead development also improves recreation opportunities and meets demands for trail opportunities close to the community of Quincy. Trailhead improvements in the Cascade Trailhead would have beneficial effects on recreation by providing a universally accessible restroom and improving parking access for all users. The South Park Trailhead would have positive impacts on equestrian recreation opportunities by providing an adequately sized parking area for equestrian access, including pull through parking for trucks towing trailers. Trailhead designation at the Spanish Creek Trailhead and at the Four Corners Trailhead for the Mt. Hough Trails would allow these areas to be designated as parking and maintained as such.

Installation of a toilet facility at the Cascade Trailhead would improve health and safety conditions of the proposed trailhead area by eliminating unsanitary conditions caused by human waste in the vicinity of the trailhead. As a result, a trailhead facility would have beneficial direct impacts on recreation opportunities by providing a more positive and safe experience for recreation users.

Trailhead improvements at the Cascade Trailhead would have short term negative impacts on recreation users since equipment would create dust and noise; however, this impact would be negligible since construction activities would be short-term.

The addition of two to three heritage resource interpretive signs as well as several cultural resource protection signs near the trailhead would serve as an educational tool and enhance the recreational experience for trail users resulting in a beneficial impact to recreation opportunities.

There would be no adverse cumulative impacts on recreation from implementing the trailhead development in the proposed action. It is likely that there would beneficial cumulative impacts on recreation over time as health and safety conditions improve, and parking and access to trails via trailheads is improved.

Direct, indirect, and cumulative impacts from treatment of invasive plants

The proposed action would treat currently identified priority invasive plant infestations at approximately 49 locations (up to 75 acres) within the project area. Treatment would consist of combination of chemical, mechanical, and manual treatments.
Implementing treatment of invasive plants under the proposed action would have minor short-term negative impacts to visitors within the MHSP Trails Project area. Project design criteria would minimize the potential for adverse impacts on recreation users. Cautionary signs would be posted at trailheads and trails to alert visitors of herbicide treatments. In addition, minimizing herbicide application to weekdays reduces the potential for an inconvenience to recreationists because there would be less trail visitation on weekdays. In the event that a trail closure was required for a larger infestation, this impact would be short-term and a minor inconvenience for visitors. The blackberry sites proposed for treatment are not known recreational picking sites. The likelihood of blackberry pickers being exposed to herbicides is further reduced due to the sequence of proposed treatments. As described in Table 9, blackberry shrubs would be cut to ground level and herbicides would be applied only to the resprouting stumps. There would be no chance of these blackberry stumps producing blackberries before or after herbicide application. Stems and leaves are not known to be picked for eating or other purposes, so the proposed treatment sequence would separate blackberry pickers from exposure to herbicide treatments.

There would be no adverse cumulative impacts on recreation from implementing treatment of invasive plants under the proposed action because project design criteria listed in Tables 10 and 11 would minimize any potential exposure to herbicide treatments and there are no known past, present, or reasonably foreseeable future projects that would negatively impact recreationists. In the long term, these treatments are likely to have beneficial effects on native plant biodiversity which would benefit forest visitors with an interest in nature study.

**Alternative B (No Action): Direct, Indirect, and Cumulative Impacts**

Direct, indirect, and cumulative impacts from not implementing proposed trail development

Alternative 2 (No Action) would not add any motorized or non-motorized trails to the National Forest System (NFS) trail network on the Mt. Hough Ranger District. Unauthorized non-system trails in the Mt. Hough and South Park trail network would continue to be used even though overall use and demand would increase. Since use of motorized trails would be prohibited on the Mt. Hough trail network, a lack of singletrack and quad trail opportunities for motorized use on the Mt. Hough Ranger District would persist without designating these trails.

Not implementing trail development could lead to an increase in potential use conflicts between the three non-motorized uses occurring on the South Park trails because trails would not be improved and signs would not be installed to promote proper trail etiquette. Lack of management on the motorized Mt. Hough trails could also lead to an increase in user conflicts. Some use conflict in the project area is likely occurring and is likely to increase over time as a result of the existing conditions. Most commonly, indirect conflict probably occurs in this area as a result of user expectations and preferences. Conditions on the unauthorized motorized and non-motorized trails would worsen and pose safety hazards to trail users. Maintenance dollars would not be
authorized to maintain, upgrade, and make trails more sustainable since these trails would not be brought into the NFS trail system. A lack of overall management would likely result in user dissatisfaction.

Signing in the project area would not be implemented on trails or trailheads. Users would likely continue to have difficulty navigating trails without signs. User etiquette signs and “multiple-use yield” signs would not be placed on trails or trailheads causing negative direct and indirect impacts on trail safety and would likely increase conflicts.

Trails users who are unfamiliar with the area would be likely be unsuccessful in finding trailheads and trails, despite the location of these trail opportunities in close proximity to Quincy.

It is possible the no action alternative could cause cumulative impacts on the 2.5 miles of the Cascade Trail along Spanish Creek if trail conditions deteriorated to a point where management actions had to be taken to close off the non-system trail to protect health and safety. This would have negative impacts on visitor satisfaction and recreation demand for trails close to Quincy since this is the most popular trail in the South Park network.

Recreation access to these unauthorized non-motorized trails is not likely to change without implementing trail development; however, visitor experiences could be degraded overtime as use increases but trails continue to be unmanaged.

The no-action alternative would not provide opportunities for longer wheelbase vehicles and vehicles towing trailers to park near the South Park trails. As there is currently no pull-through parking available to accommodate these vehicles adjacent to the existing, non-system trails in the South Park area, this particular user group would continue to be restricted to parking along the side of Chandler Road.

Use conflicts would continue without change from the existing condition. The existing, unauthorized trails are not actively managed. Continued lack of management within this area could lead to an increase in use conflict. Few signs exist or and no signs would be installed to indicate trail name, destinations, allowed uses, trail etiquette, and right-of-way.

If no action is taken to improve the trail system, trailhead information, parking and use conflict in the project area, existing recreation experience conditions would be anticipated to decline over time. The indirect effect of the no action alternative is a continued decline in recreation experience, increased use of popular trails with greater potential for use conflict, development of additional unauthorized trails, and a persistence of inadequate parking facilities.

**Direct, indirect, and cumulative impacts from not implementing trailhead development**

Alternative 2 (no action) would not implement any of the proposed four trailheads in the project area. Consequently, the no action alternative would have negative direct and indirect impacts on recreation since parking to access the South Park trail network
would continue to be inadequate. Trail user vehicles and horse trailers would continue to park in inadequate pullouts along Chandler Road. Equestrians would not have a parking area adequately sized for horse trailers. At the Cascade Trailhead, existing health and safety conditions would persist from a lack of sanitation facilities. Visitors would continue to encounter evidence of human waste in the Cascade Trailhead area. Trail users would continue to be able to park at the Four Corners proposed trailhead; however, since it would not be a designated trailhead, it would not be signed, mapped, or maintained as a recreation trailhead.

Implementing alternative 2 would fail to achieve desired conditions identified in the PNF LRMP of “improving and expanding developed facilities and trails to meet demand while reducing unit costs and protecting other resources” (USDA 1988; p. 4-3, Forest Goals and Policies) since adequate facilities would not be provided to meet demand.

It is possible there would be cumulative effects on recreation opportunities over time as a result of not implementing the proposed trailheads. If existing sanitation conditions would be allowed to persist as a result of not implementing trailheads, health and safety conditions over time could worsen to a point where visitors are dissatisfied with their visit to the Cascade trailhead area.

**Direct, indirect, and cumulative impacts from not designating the Cascade Trailhead area as day use only**

Alternative B (no action) would not implement a day use only designation at the Cascade Trailhead area. This alternative would not resolve existing and ongoing sanitation issues caused by dispersed camping in the Cascade Trailhead area. Dispersed camping would continue to be unmanaged and cause resource damage and sanitation issues along Spanish Creek.

Overnight campers seeking camping opportunities in the Cascade Trailhead area would not be displaced; however, users might have negative experiences if they encounter human waste during their camping visit.

There could be negative cumulative impacts on recreation opportunities from not implementing the day use only designation under the proposed action. Unattended fires have been a concern in this area. Under this alternative, a campfire left unattended could cause an escaped campfire to burn the entire Cascade Trailhead area and nearby homes in that area. Health and safety conditions could worsen to a point where it was necessary to take management actions to eliminate sanitation issues.

**Direct, indirect, and cumulative impacts from treatment of invasive plants**

Alternative B, no action, would not treat currently identified priority invasive plant infestations at approximately 49 locations (up to 75 acres) within the project area.

Not implementing treatments of invasive plants under the no action alternative would not have any short-term negative impacts to visitors within the MHSP Trails Project area since trail users would not be inconvenienced by treatment activities.
Since trails would not be designated under this alternative, it is possible that negative cumulative impacts could occur overtime if invasive plant infestations became large enough. Invasive plant infestations could potentially cause trail closures on the existing non-system trails in order to prevent the further spread of weeds.

**Watershed and Soil**

**Affected Environment and Analysis Framework**

The MHSP Trails Project is located on the Mount Hough Ranger District of the Plumas National Forest. The area defined for this analysis is encompassed by 14 analysis watersheds (Figure 5) that overlap with portions of four different Hydrologic Unit Code 6 (HUC6) watersheds, each of which is approximately 20,000 acres in size.

![Figure 5. Watershed Analysis Area](image)
Average annual precipitation varies from 40 to 50 inches in the lower elevations of the analysis area, and between 50 and 70 inches along Indian Falls Ridge and Grizzly Mountain (Pacific Regional Information System, online at http://www.spc.int/prism/). Precipitation falls primarily as snow above 6,000 feet, and a mixture of snow and rain below that elevation. Precipitation distribution is characteristic of a Mediterranean climate, with most precipitation occurring between October and May. About half of the annual precipitation falls during December, January and February. Surface runoff depends upon the snowmelt regime, which normally extends into late spring or early summer.

The geologic formations underlying the analysis area tend to occur in northwest-southeast bands (USDA 1988b). As a result, soil types developed from these materials also tend to occur in northwest-southeast running bands. Sedimentary and metasedimentary parent material, such as schist and shale, can be found throughout the analysis area. Metavolcanic greenstone outcrops are prominent features along the ridge that divides Indian and American Valleys. Soils developed on these slopes tend to be well drained, gravelly to cobbly loams. Parent materials in the southern portion of the analysis area also include volcanic mudflow deposits and basalts, which form moderately well drained sandy loams.

Stream channels in the analysis area exhibit a range of types and conditions. Many of the channels have been disturbed or diverted by existing roads, old roads, skid trails, or historic ditches. This has caused some channels to abruptly stop, change direction or lose connectivity. This is especially true of ephemeral stream types. An active irrigation ditch diverts water year-round from Taylor Creek into Chandler Creek. In several locations, leaks from this ditch have created perennial streams in channels that would likely be classified as intermittent or ephemeral if the ditch were not present. Consequently, during periods of high stream flow, Chandler Creek exhibits elevated levels of suspended sediments.

Field surveys conducted in the summer of 2012 for this project identified a number of seasonal wetlands that are included in the stream network that support established riparian stands of alder, cottonwood, and isolated pockets of aspen – especially along the perennially flowing Tollgate and Taylor Creeks. In general, channels tend to be well armored by bedrock and cobbles originating from upper slope parent material mentioned previously.

Cumulative Watershed Effects—analysis methods & assumptions

There are numerous methods for assessing the effects of land use activities on the landscape (USDA 1988, Berg 1996, Reid 1998). For the purpose of this CWE analysis, the effects of past, present, and reasonably foreseeable future actions were assessed using the Region Five Cumulative Off-site Watershed Effects Analysis (USDA 1988) during the Empire Vegetation Management Project analysis. Actions not captured in the ‘reasonably foreseeable future’ portion of the Empire analysis have been incorporated to reflect existing watershed condition for the MHSP Trails Project. Under this approach, the effects of land management activities were evaluated on the basis of Equivalent
Rooded Acres (ERA). These ERA values serve as a “common currency” to describe effects from a wide range of management activities. Dividing the total ERA by the size of the watershed yields the percent of the watershed in a hypothetically roaded condition. The wide use of this model in Region 5 allows for comparisons among projects across both space and time. Within the watershed analysis area (Figure 5), past management activities were analyzed to account for the cumulative amount of land disturbance that has occurred (for more detail, see the Soil and Watershed Hydrology Specialist Report in the project record). The soil analysis area is limited to the proposed trails, trailheads, and invasive plant treatment boundaries.

Watersheds and their associated stream systems can tolerate some level of land disturbance, but there is a point at which land disturbances begin to substantially affect downstream channel stability and water quality. Upper limits of watershed “tolerance” to land use are estimated for the ERA model, this upper limit is referred to as the Threshold of Concern (TOC). For this project, the TOC is conservatively estimated to be 12 percent of each of the analysis watersheds.

The linear recovery curve (Figure 6) used in this analysis is not necessarily reflective of recovery patterns on the ground. Linear recovery models tend to under-predict effects in the very early stages of recovery, and over-predict effects in later stages of disturbance recovery.

![Figure 6. Conceptual model showing a hypothetical disturbance event and the time required for recovery](image)

**Environmental Consequences**

**Alternative A (Proposed Action): Direct, Indirect, and Cumulative Impacts**

**Direct and Indirect Effects of Trail Development**

The MHSP Trails Project proposes to incorporate existing motorized and non-motorized trails into the National Forest System (NFS) trail network. This would include
maintenance and reconstruction of existing trails and short segments of new trail construction to complete loop routes and enhance the quality of the user experience. Four trailheads (0.25 acre/trailhead) would also become a part of the NFS network, with trail development modifications proposed at two (modification at the Cascade Trailhead and development of a new South Park Trailhead).

Nearly 80 percent of the proposed trails already exist on the landscape in the form of compacted soil from old timber sale and mining activities—project induced increases in the areal extent of compaction would be limited to; 10.2 miles (2.7 acres) of new trail construction (primarily 2-foot-wide single track) and trailhead development (~1 acre). Infiltration rates would be impaired for the life of the trail or trailhead, as would vegetative growth. New trail construction and reconstruction would displace organic material that has accumulated, increasing the potential for erosion and subsequent sediment mobilization in the event of an intense rainstorm. Soil buffering capacity and moisture retention would also be impacted by the displacement of the duff layer. Designating the Cascade trailhead as a Day Use area is not expected to adversely affect the soil or water resource.

Trail construction design and erosion control measures would be consistent with applicable Best Management Practices (BMP) and forest plan standards and guidelines to ensure that soil and water quality are adequately protected during and after implementation (for more detail, see the Soil and Watershed Hydrology Specialist Report in the project record). Although 80 percent of the proposed trails are pre-existing, opening them up for use without some minor improvements would have an indirect negative effect on water quality. Very few, if any, of these existing trail prisms have the appropriate drainage structure or armoring—especially at stream crossings or where trails are within Riparian Conservation Areas (RCA). According to Plumas National Forest geographic data, 154 stream crossings would be constructed or reconstructed in association with the proposed action. However, only four of these would occur on perennial streams. All crossings would be installed with the goal of minimizing impacts to water quality and riparian habitat. Maintenance and reconstruction of proposed trails would improve existing conditions that are presently causing resource damage by reducing trail-generated sediment and eliminating poorly designed stream crossings and trail placement, thereby satisfying regional water quality control board requirements. A Riparian Conservation Objective analysis has been completed to ensure compliance with the Sierra Nevada Forest Plan Amendment of 2004 (for more detail, see the Soil and Watershed Hydrology Specialist Report in the project record). A summary of road densities by watershed is displayed in Table 15 in the Wildlife section.

Cumulative Effects of Trail Development

The analysis watersheds have been assigned a sensitivity rating of “moderate” as determined in the HFQLG FEIS (USDA 1999 a). This rating is based on site specific information resulting in a Threshold of Concern (TOC) of 12 percent equivalent roaded acres (ERA). The existing, pre-project, condition of the analysis watersheds was calculated to have a range of ERA values between 0.9 and 9.5 percent, depending on the
particular watershed. When expressed as a percentage of the TOC (100 percent of TOC would mean that the watershed is at the threshold of concern) the ERA values range from 7.5 to 79.2 percent of TOC.

Alternative A, the proposed action, would not be expected to significantly change ERA values for any of the 14 analysis watersheds due to the relatively small and dispersed nature of the proposed actions (Figure 7). For example, 1.7 miles of new trail and a trailhead are proposed within the Oakland-Cascade watershed, adding 0.05 percent ERA to its existing rating of 2.7 percent ERA. Oakland-Cascade is calculated to experience the largest increase in ERA, and like the other Mt. Hough—South Park analysis watersheds, is at a very low risk of project-induced cumulative effects.

To comply with Forest goals and policies (PNF LRMP 4-10), and to address elevated ERA levels and corresponding water quality issues in the Massack and Taylor Creek watersheds (Figure 7), mitigation measures would be employed to address problematic segments of both NFS and non-system roads/trails (see Table 13 in Mitigations section, above and Appendix A for a map of all proposed water quality improvements).

![Equivalent Roaded Acres](image)

**Figure 7.** Values of Equivalent Roaded Acres for watersheds in the MHSP Trails Project watershed analysis area

**Direct, Indirect, & Cumulative Effects of Treating Invasive Plants**

To prevent the spreading of invasive plants by vehicles along NFS roads and trails associated with this project, the Forest Service proposes to treat currently identified priority invasive plant infestations at approximately 49 locations (not to exceed 75 acres) within the project area. Treatment would consist of a combination of chemical, mechanical, and manual treatments. See Table 12 for proposed RCA buffer widths.
Chemical Treatments

Herbicide treatments may affect soil directly via short-term adverse impacts on certain soil microbes and indirect effects resulting from losses in vegetative cover. Applied chemicals would likely experience: leaching; hydrolysis; adsorption on to, and desorption from soil particles; and biological degradation during the period of time that the particular herbicide remains present in the soil profile. Soil characteristics affect the herbicide residency time through drainage and cation exchange capacities.

Three different herbicides are proposed for use: Imazapyr, Triclopyr, and Aminopyralid. Imazapyr is weakly bound to soil with adsorption rates directly proportional to organic matter and clay content. Imazapyr is moderately persistent in soil but resists leaching and hydrolysis. The half-life of imazapyr ranges from 25 to 145 days. Microbial degradation is the primary means of dissipation. Triclopyr is also weakly bound to soil with an average half-life of about 46 days. It degrades quickly in water (NPIC 2002). Aminopyralid is likely to be non-persistent and relatively immobile in the field. Half-lives of 20 and 32 days were determined with minimal leaching below the 15 to 30 cm soil depth. Aminopyralid has been shown to be practically non-toxic to most organisms (SERA 2007).

Overall, the proposed herbicide types and application rates are low enough to facilitate decay by soil microbes, in some cases increasing microbial activity. Therefore, there is no basis for asserting that direct, indirect, or cumulative adverse effects on long term soil productivity are plausible as a result of these proposed treatments. Water quality would be maintained by enforcing herbicide application BMPs including the designation of stream buffers, where the use and handling of chemicals would be prohibited.

Mechanical & Manual Treatments

Treatment areas are generally associated with roads and other administrative sites where soil and water management standards and guidelines are not applied. Nonetheless, actions may temporarily decrease ground cover leading to incremental effects from erosion or slight, and extremely localized, decreases in soil moisture from ground cover reductions. This is a very minor and temporary effect and changes would be within the relative natural range of variability. If ground cover after a treatment in a riparian area drops below prescribed thresholds, project design criteria would be employed to mulch the denuded treatment area to ensure that Riparian Management Objectives are met, and any potential delivery of fine sediment is prevented. Proposed invasive plant treatments would not represent a significant disturbance or result in adverse cumulative effects.

Alternative B (No Action): Direct, Indirect, and Cumulative Impacts

Direct and Indirect Effects of Alternative B - No Action

The no-action alternative is presented in accordance with The National Environmental Policy Act of 1969 and the Council of Environmental Quality Regulation 1502.14. In the absence of a designated trail system in the Mt. Hough—South Park area, motorized and
non-motorized user groups would continue riding and walking these trails. Trail maintenance and improvements would not occur; leading to continued soil erosion and water quality degradation. The Cascade trailhead would not be designated as a day use area and overnight camping would continue. Areas proposed for trailhead development would go undisturbed, except for the one car-length off of all NFS roads where it is currently legal to park. Invasive plants would also continue to spread and displace native plant species over time.

**Cumulative Effects of Alternative B - No Action**

Under the no-action alternative, the analysis watersheds would continue to recover and their associated ERA values would slowly decline to a baseline level over time. In the short term, water quality and downstream beneficial uses would remain unchanged. As the watershed recovers from past management activities, there may be small improvements in water quality. Riparian plant communities would continue to colonize the area, further strengthening stream banks and the flood plain.

**Compliance with the Forest Plan and Other Direction**

**Clean Water Act**

The Forest Service is complying with the provisions of the Clean Water Act as it pertains to the MHSP Trails Project. Section 208 of the Clean Water Act requires States to prepare nonpoint source pollution plans that are to be certified by the State and approved by the United States Environmental Protection Agency (EPA). In response to this law, and in coordination with the State of California Water Quality Resources Control Board and EPA, the Forest Service, Region 5, began developing best management practices (BMPs) in 1975 for water quality management planning on National Forest System lands in California. This process identified the need to develop a BMP for addressing the cumulative off-site watershed effects of forest management activities on the beneficial use of water.

The MHSP Trails Project complies with the Clean Water Act through the incorporation of project design criteria; soil standards and guidelines (PNF LRMP, pages 4-43 – 4-45); and best management practices, standard management requirements, and monitoring listed in Appendices B and C and described in detail in the the Soil and Watershed Hydrology Report, available in the project record.

**Floodplain Management, Executive Order 11988 of May 24, 1977**

These executive orders provide for protection and management of floodplains and wetlands. Compliance with these orders would be assured by implementing best management practices and incorporating project design criteria (EA, Chapter 3, Soil and Watershed Hydrology Report, Design Criteria, page 11). The project is expected to have a neutral effect on the physical integrity of the aquatic system, water quality, and the watershed’s sediment regime.
Protection of Wetlands, Executive Order 11990 of May 24, 1977

These executive orders provide for protection and management of floodplains and wetlands. Compliance with these orders would be assured by implementing best management practices and project design criteria (EA, Chapter 3 Soil and Watershed Hydrology Report, Design Criteria, page 11).

Botanical Resources

Affected Environment

No threatened, endangered, or sensitive (TES) plants were located during surveys or site visits to the project activity areas. Forty nine invasive plant sites are documented in the project activity areas. Project activity areas were surveyed between 2004 and 2012 during project specific surveys, surveys for the Empire Vegetation Management Project (USDA 2007), and surveys for the Plumas National Forest Public Motorized Travel Management EIS (USDA 2010). Surveys were designed around the flowering period and ecology of those rare plant species and noxious weeds. The surveyors compiled a comprehensive list of all species observed and reviewed it for rare species and noxious weeds. A Rare Plant Report and Noxious Weed Risk Assessment by Jim Belsher-Howe, February, 2013, are available in the project record.

Environmental Consequences

Alternative A (Proposed Action): Direct, Indirect, and Cumulative Impacts

Direct, indirect, and cumulative impacts from trail development, trailhead development, and designation of the Cascade Trailhead area as day use only

Alternative A, the proposed action trail development, trailhead development, and designation of the Cascade Trailhead area as day use only, would not have any direct, indirect, or cumulative impacts on any Region 5 Sensitive species or any Threatened, Endangered, or Candidate species because none are known near proposed trails or project activity areas.

Invasive plants are unlikely to be introduced if standard mitigations (SMRs) are incorporated and followed. Invasive plant spread would be greatly reduced by implementing the proposed treatments described in the proposed action. Standard mitigation measures are listed under Design Criterion for Alternative A (see Table 10-12) and in Appendix C. SMR’s are consistent with the Sierra Nevada Forest Plan Amendment (USDA 2004), USDA Forest Service Strategy for Noxious and Nonnative Invasive Plant Management (USDA 1999 b), and Region 5’s Regional Noxious Weed Strategy (USDA 2000). Furthermore, these SMR’s are the means by which the requirements of the Forest Service Manual (FSM section 2900) are fulfilled.

Direct, indirect, and cumulative impacts from treatment of invasive plants

The proposed weed treatments, which include manual removal and herbicide application, are expected to greatly reduce or eliminate known infestations of yellow
starthistle, Canada thistle, Himalayan blackberry and medusahead within the project area.

The introduction and spread of invasive plants under alternative A would be greatly reduced through implementation of the standard management requirements (Table 10-12 and Appendix C) and the proposed invasive plant treatments. Although these control measures would not completely remove the risk of invasive plants, they would greatly reduce the potential for invasive plants to impact native plant communities within the project area.

While it is often difficult to draw definitive conclusions regarding the effects of past project activities on invasive plants, the high level of past activity within the project area, combined with the current level of invasive plant infestation, suggest that past activities have contributed to the introduction and spread of invasive plants across the project area.

The proposed project activities could increase the risk of invasive plant establishment and spread in the project area by increasing the amount of suitable habitat for weeds. In addition, the close proximity of the project to private land, the existence of on-going activities such as recreation and road maintenance, and the spatial extent of existing infestations of invasive plants, all increase the vulnerability of the project landscape to colonization by invasive plants, even in the absence of project activities. Implementation of the proposed treatments of invasive plants and standard management requirements, as well as post-project monitoring, would greatly reduce this risk. By directly reducing the density and extent of invasive plants within the project area over time, the cumulative effect of invasive plant spread would be greatly reduced.

All of the proposed herbicides are highly effective at killing plants. By the nature of their action herbicide can be non-selective or selective. Non-selective herbicides can kill all types of plants whereas selective herbicides kill certain groups of plants while not impacting other groups of plants. There are several ways to prevent herbicides from getting on plants of concern. Spatial separation, physical barriers, and method of herbicide application are the most practical. Since there are no threatened, endangered, or sensitive (TES) plants near the proposed invasive plant treatment sites, spatial separation exists without any additional preventative measures being taken. There would be no direct, indirect, or cumulative effects from invasive plant treatments on any Region 5 Sensitive species or any Threatened, Endangered, or Candidate species because of the spatial separation between treatment areas and TES plants.

**Alternative B (No Action): Direct, Indirect, and Cumulative Impacts**

The no action alternative would not have any direct, indirect, or cumulative impacts on any Region 5 Sensitive species or any Threatened, Endangered, or Candidate species because none are known near proposed trails or project activity areas.

There would be no direct effects to invasive plant species under the no action alternative, and the 49 known infestations would persist and continue to spread. Of these 49 known invasive plant infestations in the project area, only a few sites have
been treated in the past. Due to the ineffectiveness of these treatments, full scale treatments have not been implemented and only two locations of yellow starthistle are currently being treated on an on-going basis. Therefore, the remaining infestations of yellow starthistle, Canada thistle, Himalayan blackberry and medusahead would continue to spread within the analysis area at their current rates.

This alternative would not result in any new ground-disturbing activities so the amount of suitable invasive plant habitat would remain at its current level. Infestations of yellow starthistle, Canada thistle, Himalayan blackberry and medusahead which are not treated on an on-going basis, would continue to spread at their present rates.

The no action alternative would not increase the risk of introducing new infestations of invasive plants because no ground disturbing activities would occur. However, the existing long-term risk of invasive plant spread from on-going use of NFS roads and approved trails would persist under this alternative.

Roads, whether they are major highways, general forest roads, or motorized vehicle trails, are often the primary conduit for the introduction and establishment of invasive plants. Roads and motorized trails contribute to dispersal of invasive plant species because they (1) create suitable habitat by altering environmental conditions, (2) make invasion more likely by stressing or removing native species, and (3) allow for easier movement by wild or human vectors (Trombulak and Frissell 2000). Under the no action alternative, the existing infestations could act as entry points or seed sources for invasive plants moving into less-invaded parts of the analysis area.

The lack of ground disturbing activities under the no action alternative would not increase the amount of suitable habitat for invasive plants in the short-term. However, the lack of treatments of invasive plant infestations would allow yellow starthistle, Canada thistle, Himalayan blackberry and medusahead to persist and expand in their current locations and would increase the risk of spread into un-invaded native habitats within the Botany analysis area.

The large number of past activities, the close proximity to private land, and the spatial extent of invasive plant infestations all increase the vulnerability of the landscape to establishment of invasive plants, even in the absence of project activities. Vectors for invasive plant spread that are unrelated to the proposed project, such as recreational activities and ongoing forest management (e.g road maintenance), would continue to contribute to the dispersal and spread of invasive plant species in the project area.

Cultural Resources

Affected Environment

The entire 592-acre project area has been inventoried for cultural resources. All cultural resource sites within and adjacent to the project area have been located and properly recorded and the boundaries have been or will be flagged prior to signature of the Decision Memo. The flagging will be removed once construction activities are
completed. The most recent cultural resource inventory of 262 acres was completed in October, 2012 under ARR #02-08-2013: Mt. Hough – South Park Proposed Trail Network Project Cultural Resource Inventory Report, by Doug Baughman, December, 2012. A copy of this report is filed in the project record at the Mt. Hough Ranger District. The remaining 330 acres within the Project Area were previously surveyed for cultural resources under 23 cultural resource inventory reports dating from 1976 to 2007, as listed in the report referenced above. Copies of these reports are on file at the Mt. Hough Ranger District. In 2012, six new cultural resource sites were recorded. In addition, four isolated finds were recorded in the analysis area. A total of twenty-four cultural resource sites are located within the Project Area.

Consultation with Federally recognized tribes and local Native American communities and/or interested parties was initiated in accordance with the First Amended Regional Programmatic Agreement Among the USDA Forest Service, Pacific Southwest Region California State Historic Preservation Officer, and Advisory Council on Historic Preservation Regarding the Process for Compliance with Section 106 of the National Historic Preservation Act (NHPA) for Undertakings on the National Forests of the Pacific Southwest Region (RPA) (March, 2001), National Historic Preservation Act, and other laws and regulations. The RPA requires that the forest take into account the potential effects of projects and activities on cultural resources, prior to initiating any actions that could affect those properties.

**Environmental Consequences**

**Alternative A (Proposed Action): Direct, Indirect, and Cumulative Impacts**

The direct, indirect, and cumulative impacts of Alternative A, the proposed action, on cultural resource sites would be mitigated by using suggested resource protection measures (see Tables 3-7 and 10) and Appendix C. Possible direct effects include vandalism, looting, and trampling. There could be indirect and cumulative effects to cultural resources due to the potential of increased visitor use on the trails and at the trailhead areas. The designation of the Cascade Trailhead area as day use only would have a beneficial effect on cultural resource sites because they would be protected from dispersed camping and associated impacts. Based on surveys conducted by Mt. Hough Assistant District Archaeologist Doug Baughman on February 10th and 11th, 2010, dispersed camping is currently having a negative impact on the cultural resources in the vicinity by trampling and movement of artifacts from foot traffic and accumulation of modern litter negatively impacting cultural resource context. Prohibiting the dispersed camping that is currently occurring in this area would have a positive impact on cultural resources. Off-road vehicle travel would be restricted to the road prism and foot traffic would be reduced in and around campsites. Eliminating dispersed camping would reduce this concentration of foot traffic in and around these dispersed camp sites.

There is one cultural resource site located approximately 125 feet west of the proposed vault toilet in the Cascade Trailhead area. Standard Management Requirements include avoiding the flagged cultural resource site boundaries and directional falling of trees
away from cultural resource sites. Approximately 75 feet to the west of the proposed toilet location there is an area of irregular ground surface. Since the surface would be graded for construction of parking spaces, an archaeologist should be present during these activities to check for sub-surface archaeological deposits.

Cultural resource sites will be flagged for avoidance during trail construction activities. All proposed trails and trailheads included in Alternative A have been designed to avoid cultural resource sites. By implementing a flag and avoid policy on cultural resource sites in this area, equipment and vehicles would not damage archaeological resources. Heritage Resource personnel would flag cultural resource site boundaries prior to implementation; vehicles and equipment would not be allowed within these boundaries.

Roads and trails proposed for obliteration to mitigate the proposed action would have no effect on heritage resources. Areas proposed for obliteration have been surveyed for heritage resources and none were found.

Additional beneficial effects of the proposed action would be realized due to the placement of interpretive signs for informational and educational purposes at the Cascade Trailhead and at Apple Flat. The installation of these signs would help protect and enhance cultural resources.

Alternative A would not have significant negative direct, indirect, or cumulative impacts on any cultural resources because proper mitigation measures would be followed. Most cultural resources would be avoided by flagging sites and requiring contractors to exclude these areas from any activity. Several sites will be affected by the proposed projects, including some with positive effects. Beneficial effects to cultural resource sites would be realized at the Cascade Trailhead area because the trailhead would be moved 500 feet and barriers would be installed to protect cultural resources. The design criteria proposed for this project (installation of interpretive signs at the Cascade Trailhead and Apple Flat, felling trees away from archaeological sites and culverts, designing and constructing trails to avoid cultural resource sites, and designing and constructing the South Park Trailhead to avoid interference with existing cultural resource sites) would minimize the impact of the project on cultural resources.

**Alternative B (No Action): Direct, Indirect, and Cumulative Impacts**

Under the no action alternative, beneficial effects of the proposed action would not be realized. Cultural resources at the Cascade Trailhead area would remain unprotected and interpretive signs would not be installed at the Cascade Trailhead or at Apple Flat. Cultural resources in the project area would continue to be damaged by recreational use and modern litter resulting from dispersed camping and by off-road vehicle travel. No improvements or changes of any kind would be made to the project area. Implementing Alternative B could cause a minor cumulative effect of modern litter accumulation over time on cultural resource sites.
Wildlife

Affected Environment

There are no known Threatened or Endangered (T&E) Species or T&E species habitat, including any critical habitat, located within or adjacent to the MHSP Trails Project area. Known sensitive species located within the project area include California Spotted Owl and Northern Goshawk. Surveys for spotted owls and northern goshawk were conducted in the project area in 2004 and 2005, for the Empire Vegetation Management Project (USDA 2007). Owl surveys were also completed in the area in 2009 and 2010 as part of the Plumas Lassen Administrative Study, Treatment Unit 7 (USDA 2011). Surveys completed for the Empire Vegetation Management Project, which the MHSP Trails Project area falls within, included Northern Goshawk surveys (2004, 2005), amphibian surveys (2004), and carnivore surveys (2004). The most recent bat surveys conducted in the area were in 2002 as part of the Plumas Lassen Administrative Study, Treatment Unit 3 (USDA 2002). Several sensitive species were located, and summarized information is located in the biological evaluation report and management indicator species report in the project record.

A Biological Assessment/Biological Evaluation report and Management Indicator Species report was completed for terrestrial and aquatic wildlife by Colin Dillingham in April 2013 and is available in the project record.

Environmental Consequences

**Alternative A (Proposed Action): Direct, Indirect, and Cumulative Impacts**

**Management Indicator Species: Mule Deer (Odocoileus hemionus)**

Direct and indirect impacts from trail development, trailhead development, designation of the Cascade Trailhead area as day use only, and watershed improvements

In this analysis, mule deer is used as an indicator species for road and motorized trail impacts to wildlife species in general. Because studies have evaluated the effects of roads and motorized trails on deer, and because open road density has been used as an indicator for habitat effectiveness models for deer (Perry and Overly 1977, Thomas et al. 1979), using deer as an indicator species for both existing road and proposed motorized trail and non-motorized trail impacts to other wildlife species is appropriate. Much of the literature in regard to wildlife effects to vehicles has been for roads rather than motorized trails. The response of mule deer to motor vehicle use varies depending upon the type of vehicle, the intensity, timing, speeds and amount of motor vehicle use. Effects of motorized trails are expected to be far less than effects caused by high speed roads with heavy traffic. The information cited from published literature in this report includes effects of motorized trails as well as roads (forest roads and more heavily traveled main roads and highways). Following analysis methodology established in the Plumas National Forest Motorized Travel Management Project FEIS, this analysis
assumes that all vehicle types result in the same disturbance to mule deer (USDA 2010). Therefore, changes in the class of vehicles would not vary in their effects to mule deer, although differences would be expected related to the type of road or trail and amount of vehicle usage.

Wisdom et al. (2004) found that mule deer showed little measurable flight response to experimental off-highway vehicle (OHV) treatments but cautioned that deer may well be responding with fine-scale changes in habitat use (i.e. avoidance), rather than substantial increases in movement rates and flight responses. Several studies have found that mule deer avoid areas in proximity to roads. Deer avoid primary roads more than secondary or tertiary roads and also avoid roads more in open habitats as opposed to areas with vegetative or topographic cover (deVos et al. 2003). Various studies have shown that mule deer have displacement distances that vary between 200 and 800 meters, depending upon the road type and traffic level and the surrounding habitat (Perry and Overly 1977, Rost and Bailey 1979, Johnson et al. 2000). The proposed action may be expected to have negative long-term impacts on mule deer behavior associated with human disturbance during both the winter and summer season.

Within individual wildlife species, a number of factors can influence the degree of impact resulting from motorized vehicles, including the animal’s breeding status, its size, and the size of the group it is with (Burger et al. 1995). Studies have shown a variety of disturbance is possible from motorized vehicles. While these impacts are difficult to measure, repeated harassment of wildlife can result in increased energy expenditure and reduced reproduction. Noise and disturbance from motorized vehicles can result in a range of impacts including increased stress (Hayward et al. 2011, Nash et al. 1970, Millspaugh et al. 2001), altered movement patterns (e.g., Wisdom et al. 2004, Preisler et al. 2006), and avoidance of high-use areas of OHV trails (Janis and Clark 2002, Wisdom 2007).

Project design criteria include removal of some proposed and existing motorized trails to reduce impacts to deer and other wildlife. Specifically, two trails within the Mt. Hough Game Refuge that were originally proposed as a part of this project have been dropped from consideration. In addition, planned road decommissioning (refer to the Mitigation section and the map in Appendix A) would have long-term benefits to mule deer and other wildlife species. Short-term impacts to mule deer may occur during a brief definitive period of time (new motorized trail construction), whereas long-term impacts could endure well into the future. Potential long-term impacts include disturbance from open roads and OHV trails (Wisdom 2004), increased opportunity for both legal and illegal kill due to increased access, and a potential minor increase for incidental road kill. Deer herd management plans Plumas County indicate that deer fatalities along highways, such as Hwy 70 and 89 contribute to loss of individuals and are a factor affecting deer (USDA 2010). There are little to no data on deer road kills along Forest roads. Deer-vehicle collisions on motorized trails which are maintained for high-clearance vehicles, quads and motorcycles are probably not appreciable in number due to the lower speeds and the amount of use received on these roads. The project-related impact of increased deer road kill is unlikely and would probably be limited primarily to
young fawns (if any) due to the slow speeds of travel anticipated to occur on these routes. Road kill is more likely for smaller species of wildlife, particularly for reptiles, amphibians, small mammals and ground nesting birds, than actually for mule deer due to the relatively slow road speeds (Rei and Seitz 1990, Fahrig et al. 1995, Ashley and Robinson 1996, Gibbs 1998, DeMaynadier and Hunter 2000).

As shown in Table 2, this project proposes to create 10.2 miles of new construction (8.5 miles of motorized and 1.7 miles of non-motorized routes) and to fully rehabilitate 12.9 miles of routes (10.7 miles of motorized and 2.2 miles of non-motorized routes), for a total of 23.1 miles of newly open and available routes. Trails slated for complete rehabilitation are similar in effects to new construction in that they are currently unauthorized and often not useable because they are generally too brushy to drive on and would become open to motorized and non-motorized use after project implementation.

The non-motorized trails are of low concern to wildlife species due to low disturbance effects. Once again, effects of motorized trails are expected to be far less than effects caused by high speed roads with heavy traffic. Of the 19.2 miles of motorized routes proposed for new construction or rehabilitation, 16.4 miles overlap with the Mt. Hough Game Refuge. This represents a 20% increase in the combined density of motorized roads and trails within the refuge (Table 15). Existing roads have higher use patterns than the proposed motorized trails, and therefore have greater impacts to wildlife species. However, for this analysis motorized trails and open roads are combined for presentation of effects. New motorized trails proposed with this project in addition to existing open motorized trails and roads would not render habitat unsuitable for mule deer or associated wildlife species. Although the PNF LRMP (USDA 1988) does not include standards and guidelines pertaining to road density for deer herd management, the Western Association of Fish and Wildlife Agencies Mule Deer Working Group has recommended open road densities be maintained as 1.9 mile per square mile or less (Hayden et al. 2008). Disturbance from the project activity would increase existing motorized traffic, primarily through increased recreational activity levels. The project design criteria for terrestrial wildlife would decrease impacts to deer, but overall disturbance would increase and would cause a negative trend in the habitat suitability in the project area by causing a 23% increase in the miles of motorized trails and existing open to motorized traffic in the project area (see Table 15). Although this project will cause a decline in one factor of habitat suitability for deer (disturbance from motorized vehicles), other more important habitat components, such as foraging habitat and hiding cover, would not be affected. Although Table 15 was constructed to demonstrate the effects of the proposed action on mule deer, it also represents the effects on essentially all species of wildlife that are present in the project area, including other MIS species such as mountain quail (Oreortyx pictus). The expected increase in motorized activity would have negative effects on wildlife species through disturbance and limited direct kill of small wildlife species. The proposed action would decrease long-term road density objectives for mule deer and other wildlife species in regards to disturbance from motorized vehicles, but would not cause habitat to become unsuitable.
Table 15. Change in combined density of roads and motorized trails in the Mt. Hough Game Refuge and the MHSP Trails Project area that would be caused by the proposed action

<table>
<thead>
<tr>
<th>Watershed</th>
<th>Watershed Area</th>
<th>Motorized Route</th>
<th>Change in combined density of roads and motorized trails</th>
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<tr>
<td></td>
<td>Square miles</td>
<td>acres</td>
<td>Existing roads</td>
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</tr>
<tr>
<td>Massack Creek</td>
<td>2.2</td>
<td>1415</td>
<td>8.3</td>
</tr>
<tr>
<td>Mt. Hough Game Refuge*</td>
<td>25.5*</td>
<td>16321</td>
<td>82.8</td>
</tr>
<tr>
<td>Total Project Area</td>
<td>52.0</td>
<td>33309</td>
<td>140.8</td>
</tr>
</tbody>
</table>

*This analysis includes the portion of the Mt. Hough Game Refuge that overlaps with the analysis area.

Cumulative impacts from trail development, trailhead development, and designation of the Cascade Trailhead area as day use only

There are several factors that contribute to the health of mule deer populations, including: the quality of native habitats, loss of individuals to road kill, and wildfire prevention that has prevented rejuvenation of forage species. Increasing the
disturbance to deer populations through the implementation of this project, cumulatively with other projects in the vicinity such as the Empire Vegetation Management Project (USDA 2007), Plumas National Forest Motorized Travel Management Project (USDA 2010), and the proposed Grizzly Ridge Trail Project would cause disturbance and would have limited, long-term negative impacts to the road density objectives for deer and other species in regards to disturbance from motorized vehicles. However, the Mount Hough Game Refuge Burn Project is enhancing a substantial amount 670 acres of important habitat in 2013 in the analysis area, which will have substantial long-term (approximately 30 years) benefits to the mule deer herd. Routes that were initially proposed as a part of this project that overlapped with the burn area were dropped to maintain the high quality habitat. This substantial habitat enhancement project would balance out the negative effects of the proposed action. Cumulatively, projects in the analysis area in the foreseeable future will not cause long-term negative trends in mule deer populations.

**Northern goshawk (Accipiter gentiles)**

**Direct and indirect impacts from trail development, trailhead development, and designation of the Cascade Trailhead area as day use only**

There are three known goshawk nesting territories in the project area and each are managed with 200 acre protected activity centers. One proposed motorized trail, “Tie” is 1200 foot long trail and is located 800 feet north of one historic goshawk nest and is within the goshawk protected activity center. This existing trail would become open to all vehicles and would require some maintenance. No proposed actions occur within ¼ mile of the other two goshawk activity centers. Although existing open roads occur within all three goshawk protected activity centers (PACs) and existing unauthorized trails occur in goshawk protected activity centers that would be authorized with this proposed action, no new construction or total reconstruction of trails is proposed in goshawk PACs. No limited operating periods (LOPs) currently apply, but would be considered if future actions and nests occurred coincidentally. If an active goshawk nest is found, an LOP would be applied within ¼ mile of the nest with no construction activities from February 15 to September 15, pending consultation with the District Wildlife Biologist. Research indicates that typical recreational off-highway vehicle (OHV) activity, such as brief passes by OHVs along road segments near goshawk nesting areas totaling a few minutes of exposure per hour, would not be expected to negatively affect nesting goshawks (Dunk et al. 2011).

Disturbance to goshawks would be limited due to the lack of coincidence between nest sites and existing roads, no proposed new construction or total reconstruction trails and recent research findings that indicate typical OHV activities do not negatively affect nesting goshawks (Dunk et al. 2011). However, increased disturbance to goshawks would be long-term, because proposed disturbance caused by increased recreational activity would continue indefinitely. The proposed non-motorized trails in the South Park area would have essentially no effect as the trails and other actions occur in largely
unsuitable habitat, and no goshawks have been detected in the South Park area. Actions in the proposed Mt. Hough motorized trail network coupled with the existing road base would have a greater potential to disturb goshawks as three goshawk protected activity centers occur in that portion of the project area. Although all three activity centers in this project area have open roads within them, known nests are not located immediately adjacent to open roads. This project does not propose to create any new roads or trails nor propose any reconstruction of trails within goshawk nest or activity cores. No proposed treatment of invasive plants would occur in goshawk PACs. There would be limited, long-term disturbance caused by this proposal, which has limited potential for this project to disturb individuals, but there is essentially no chance for this project to impact the Plumas NF metapopulation or the R5 population of goshawks, or to have an impact at the species level.

**Cumulative impacts from trail development, trailhead development, and designation of the Cascade Trailhead area as day use only**

Suitable habitat would not be removed with this project. Potential disturbance is considered minor due to research that has shown that goshawks do not negatively react to typical OHV activities (Dunk et al. 2011). Cumulative effects of past vegetation management projects including the Plumas National Forest Motorized Travel Management Project (USDA 2010) and Empire Vegetation Management Project (USDA 2007), resulted in findings of not likely to result in a trend toward Federal listing or loss of viability for the northern goshawk. The minor disturbance effects of the MHSP Trails Project, cumulatively with other disturbances such as past projects listed above, the proposed Grizzly Ridge Trail project, and related disturbances may affect individual goshawks, but would not cumulatively impact the Plumas NF metapopulation or R5 population of goshawks, or have an impact at the species level.

**Determination**

This project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for the northern goshawk.

**California spotted owl (Strix occidentalis occidentalis)**

**Direct and Indirect impacts from trail development, trailhead development, and designation of the Cascade Trailhead area as day use only**

No proposed actions would occur within ¼ mile of known spotted owl nest locations. Although existing open roads occur within all four spotted owl protected activity centers (PACs) and existing unauthorized trails occur in spotted owl protected activity centers that would be authorized with this proposed action, no new construction or total reconstruction of trails is proposed in spotted owl PACs. No limited operating periods currently apply, but would be considered if future actions and nests occurred coincidentally.
Disturbance would be limited due to the lack of coincidence between nest sites and existing roads, no proposed new construction or total reconstruction trails. However, increased disturbance would be long-term, because proposed disturbance caused by increased recreational activity would continue indefinitely. Off-highway vehicles may cause some disturbance to nesting spotted owls which may cause some decreased productivity to affected owls (Hayward et al. 2011). The proposed non-motorized trails in the South Park area would have essentially no effect as the trails and other actions occur in largely unsuitable habitat, and no owls have been detected in the South Park area. Actions in the proposed Mt. Hough motorized trail network area coupled with the existing road base would have a greater potential to disturb spotted owls as four spotted owl protected activity centers occur in that portion of the project area. Although all four protected activity centers in this project area have open roads within them, known nests are not located immediately adjacent to open roads. This project does not propose to create any new roads or trails nor propose any reconstruction of trails within nest or activity cores. One 800-foot section of an existing road would be designated on the southern margin of one of the four protected activity centers (Cashman, PLU038), but this action is not adjacent to the activity center. No proposed treatment of invasive plants would occur in suitable spotted owl habitat. There would be limited, long-term disturbance caused by this proposal, which has limited potential for this project to disturb individuals, but there is essentially no chance for this project to impact the Plumas NF metapopulation or R5 population of spotted owls, or to have an impact at the species level.

**Cumulative impacts from trail development, trailhead development, and designation of the Cascade Trailhead area as day use only**

Spotted owl suitable habitat would not be removed with this project. Effects to spotted owls are limited to indirect effects caused by noise disturbance and associated physiological response to individual spotted owls. A study by Wasser et al. (1997) found that stress hormone levels were significantly higher in male Northern spotted owls (but not females) when they were located less than 0.25 mile from a major logging road compared to spotted owls in areas greater than 0.25 mile from a major logging road. It is not well understood how elevated stress hormones affect spotted owl populations. Due to the lack of immediate adjacency between routes proposed with this project and nest sites, the additive negative effects are considered minor. The minor disturbance effects of the MHSP Trails Project, cumulatively with other disturbances such as that caused by the Plumas National Forest Motorized Travel Management Project (USDA 2010), the Empire Vegetation Management Project (USDA 2007), and the proposed Grizzly Ridge Trail Project, and related disturbances may affect individual owls, but would not cumulatively impact the Plumas NF metapopulation or R5 population of spotted owls, or have an impact at the species level.

**Determination**

This project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for the California spotted owl.
Direct and indirect impacts from treatment of invasive plants for all terrestrial and aquatic wildlife species

The eradication of invasive plants would improve the native biodiversity in which terrestrial wildlife species evolved. The maintenance of biodiversity requires community and ecosystem management rather than focusing on a single species. Native plant communities and their historic disturbance patterns are the fundamental building blocks that shape faunal communities. The diversity of biological components is best maintained by managing the land within the range of natural variability under which the species adapted and evolved.

Herbicides are used to efficiently eradicate invasive plants, particularly those that aggressively reproduce by vegetative rhizomes or root buds. Syracuse Environmental Research Associates (SERA) prepared human health and ecological risk assessments for the proposed three herbicides (Aminopyralid, Imazapyr, and Triclopyr), all of which were shown to be practically non-toxic to birds, mammals, honey bees, earthworms, and soil microorganisms (SERA 2004, SERA 2007, SERA 2011). These herbicides are practically non-toxic to terrestrial wildlife species, because they are designed to kill most plants or a specific group of plants only. These herbicides mimic plant growth hormones, occupy cellular binding sites of plant enzymes, and interfere with photosynthesis, respiration, amino acid synthesis, or cell division. These synthetic plant growth hormone analogs are inert when they are consumed by terrestrial wildlife species, because no plant enzymes are involved in wildlife metabolism.

Herbicides do not persist in the environment, do not bioaccumulate in terrestrial wildlife species, and are rapidly eliminated from the body. However, urine excreted by wildlife that has consumed herbicides may kill plants. The US EPA (1988) has conducted extensive analysis of the dietary exposure of 3,5,6-trichloro-2-pyridinol, which is an environmental metabolite of Triclopyr produced by soil microorganisms. Dietary exposures are substantially below a level of concern. Impurities are any substance in an herbicide other than the active or inert ingredients. Toxicity studies have been conducted using technical grade herbicides to assess the risk of herbicides and their impurities.

The peer-reviewed risk assessments are available online at http://www.fs.fed.us/foresthealth/pesticide/risk.shtml. These reports assess the acute and chronic effects of herbicides on biological resources and well exceed US Environmental Protection Agency regulatory requirements. Risk assessments identify the hazard or toxicity, assess the exposure, assess the dose-response, and characterize the risk of each herbicide. Worst-case exposure scenarios include workers and the public, terrestrial and aquatic organisms, and eating or drinking contaminated material. Worst-case exposure scenarios for representative groups of wildlife include direct spray of small mammals, birds and mammals eating vegetation or insects sprayed with herbicide, predatory birds and mammals eating fish or small mammals, small mammals drinking contaminated water, and small mammals brushing against contaminated vegetation followed by grooming.
The proposed action, Alternative A, proposes to treat up to 75 acres of invasive plants per year for a maximum of 5 years using herbicides, and consists of very small portions of subwatersheds. Terrestrial wildlife may be disturbed by herbicide applicators during the breeding season, but herbicides would be applied during the summer after nesting pairs have bonded to each other and their offspring. Limited operating periods for all special status wildlife species would be implemented as necessary, unless surveys confirm that special status wildlife species are not nesting. Most invasive plants occur along major travel routes, where sensitive terrestrial wildlife species are not present. Project activities may alter the timing of nesting, denning, and foraging for the species. However, the scale of this reduction would be small, and design criteria and mitigation measures would reduce both direct and indirect impacts. Disturbance from the project activity would not be beyond existing road traffic, commercial, residential, and recreational activity.

Project design criteria for herbicide application (Table 10-12) were developed to ensure compliance with Region 5 direction. Design criteria would minimize adverse impacts to individual sensitive species. Project design criteria are in place to limit impacts in any sensitive areas such as riparian areas. These factors will keep risk of cumulative effects to a minimum. Amphibian surveys were conducted in the Empire Project area, which overlaps considerably with this proposed project. No yellow-legged frogs were detected. Suitable habitat for frogs and other amphibians does not overlap with proposed herbicide treatment areas.

The overall impacts of “physical” manual treatment of invasive plants (hand pulling, clipping, mulching, and/or tarping, or mechanical treatments such as pulling with tools, mowing cutting, brushing, or trimming) would be negligible and would be considered to have no effect on wildlife species.

Based on the separation of the proposed treatment areas from sensitive species habitat, half-lives of these chemicals, limits on application, and project design criteria, there is very little risk of any direct or indirect effects of invasive plant treatments to wildlife species.

Cumulative impacts from treatment of invasive plants for all terrestrial and aquatic wildlife species

Herbicide use by residential properties adjacent to the project area certainly occurs, but the amounts used by other property owners are unknown. The invasive plant treatment project would contribute a negligible amount of herbicides in the analysis area, relative to the land area present. Project design criteria would further protect sensitive riparian areas.

Early detection and rapid response would employ a combination of manual, mechanical, thermal, and chemical treatments to proactively treat new infestations of invasive plants before they increase in size. Proactive management using a variety of methods is more cost-effective and less intrusive than treating weeds by manual methods alone. This alternative would protect and enhance terrestrial wildlife habitat in the long term.
There would be no cumulative effect from noise disturbance, because disturbance from the project activity would either not exceed existing road traffic, commercial, residential, and recreational activity or would be limited by project design criteria. Risks of cumulative effects to aquatic and terrestrial wildlife species are regarded as extremely low with invasive plant treatment. Because these effects would be limited to areas of invasive plant infestations where no wildlife species of concern occur, the potential effects are immeasurable and therefore no effects would be anticipated.

**Alternative B (No Action): Direct, Indirect, and Cumulative Impacts**

Under the no action alternative, none of the proposed treatment activities would occur and no impacts to terrestrial or aquatic wildlife species would be anticipated.

**Mining**

**Affected Environment**

The area near the Cascade Trailhead has experienced extensive gold mining over the last century and mining still continues today. Most miners dredge or pan along this stretch of Spanish Creek and many miners camp in the Cascade Trailhead area while they are mining on their claim. The claim at the end of NFS road 25N48X has belonged to the Golden Caribou Mining Club since 1997 and members of the mining club use the site intermittently. The Golden Caribou claim (Knumb Knutts III) is currently operated under a Notice of Intent. Although the Golden Caribou claim is the claim most likely to be affected by the proposed project, there are three additional claims further up the trail (Paymaster Echo, Princess I and Spanish Creek UPI).

**Environmental Consequences**

**Alternative A (Proposed Action): Direct, Indirect, and Cumulative Impacts**

The proposed modifications to the parking area for the Cascade Trailhead may have a short-term effect on NFS road 25N48X which provides access to mining claims. Miners may have limited access by vehicle to their claims during parking lot modification activities and during installation of the toilet, or their access could be temporarily prohibited beyond the trailhead until project work is complete. Vehicle and equipment access to the creek would be limited in some areas by barriers erected to protect natural and cultural resources. Any conflicts with access would be minimal. Sanitation would be greatly improved in the area of mining claims as a result of the toilet. Alternative A could cause an increase in foot traffic through existing mining claims as an indirect effect on mining.

Designating the Cascade Trailhead area as day use only would have the most effect on mining because mining claimants often choose to camp within sight of their claim to protect mining equipment. Camping in the surrounding areas of the claims would need to be relocated to other areas. There are several other areas within close proximity where miners could camp. These areas are referenced in the recreation section above.
on page 37. Mining equipment would need to be brought in on a daily basis or stored on site without supervision of the mining claimant. There would be no cumulative effects on mining.

Alternative A would have long-term beneficial cumulative effects by minimizing resource damage and improving sanitation in the Cascade Trailhead area through development of a toilet facility. The other actions proposed as part of the MHSP Trails Project would not be expected to impact mining activity.

**Alternative B (No Action): Direct, Indirect, and Cumulative Impacts**

The no action alternative would have no direct effect on mining in the project area. However, there could be negative indirect effects on mining as a result of a lack of management activities under alternative B because sanitation issues would be unresolved. Vehicle access to the creek would remain unrestricted for miners.

Alternative B would result in continuing sanitation related impacts and potentially make the area undesirable for camping and mining in the long term.

**Fire, Fuels, and Air Quality**

**Environmental Consequences**

**Alternative A (Proposed Action): Direct, Indirect, and Cumulative Impacts**

**Fire**

Implementing a larger parking area at the Cascade Trailhead and an area with adequate turnaround radius at the South Park trailhead would have an overall benefit for fire vehicle access and public egress in the event of a fire. Fire suppression efficiency would be improved within the project area with trailhead improvements. Designation of the Cascade Trailhead area as day use only would likely reduce the potential for campfire escapes related to dispersed camping. Much of the increased potential for human-caused fires associated with increased public use resulting from developing trailheads and trails would be mitigated by designation of the Cascade Trailhead area and NFS road 25N48X as day use only. Cumulative impacts on human caused fires are not likely as a result of implementing the proposed action.

**Fuels**

The proposed action would include removing several trees for the development of two non-motorized trailheads for parking access (at the Cascade and South Park trailheads). All trees removed would be felled and decked for sale as a forest product or for firewood gathering. Slash from tree removal would be chipped wherever feasible or piled and burned, resulting in no significant increase in fuel load as a result of project activity. The proposed action would have negligible direct, indirect or cumulative effects on fuels.
Air Quality
Slash resulting from vegetation removal would be chipped, and the chips spread on the ground resulting in minimal dust and exhaust emission during operation. If slash is piled and burned, burning would be completed under an approved Air Pollution Permit in close coordination with the local Air Quality Management District. Smoke emissions would be negligible however dispersed smoke would travel to the north east towards Mount Hough, and may be visible from Keddie and Quincy, California. There would be potential for increased dust emissions from vehicle traffic on 2S48X and OHVs on the Mt. Hough Trails associated with increasing popularity and use of trails. Trailhead development for the two non-motorized trailheads may result in greater dust emissions due to construction traffic, however; this effect would be short term in nature. The proposed action would have negligible direct, indirect or cumulative effects on air quality.

Alternative B (No Action): Direct, Indirect, and Cumulative Impacts
Alternative B would have no direct indirect or cumulative impacts on fire, fuels, or air quality.

Forest Vegetation

Affected Environment
The Analysis Area is located in westside Sierra Nevada forest with an elevation ranging between 3200 and 3300 feet. The Analysis Area is entirely Sierran mixed conifer (SMC) habitat type, which is dominated by ponderosa pine (Pinus ponderosa), Douglas-fir (Psuedotsuga menziesii), Incense cedar (Calocedrus decurrens), sugar pine (Pinus lambertiana), and white fir (Abies concolor). California black oak (Quercus kelloggii) is also a minor component. Many of the forest stands can be described as overstocked and very dense, dominated by sapling and pole-size trees. An exception to this are hand thinning treatments conducted under the Empire Vegetation Management Project (USDA 2007) near the Cascade Trailhead area. In this area, stand structure has been greatly improved.

Environmental Consequences

Alternative A (Proposed Action): Direct, Indirect, and Cumulative Impacts
Tree removal associated with construction of parking areas, trail development, and trail maintenance would be unnoticeable at the stand level. Effects would be highly localized to the project area with no overall impacts the forest composition or structure. The proposed action would have negligible direct, indirect or cumulative effects on forest vegetation.

Alternative B (No Action): Direct, Indirect, and Cumulative Impacts
Alternative B would have no direct, indirect or cumulative impacts to forest vegetation.
REFERENCES


Pacific Regional Information System – online at http://www.spc.int/prism/


USDA. 1988 b. Soil Resource Inventory. USDA Forest Service, Plumas National Forest, Quincy, CA.


CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

**ID TEAM MEMBERS:**

Interdisciplinary Team Leader – Gretchen Jehle
Botany – Jim Belsher-Howe
Cultural Resources – Doug Baughman
Engineering, GIS, and Trail Design – Pete Hochrein
Fire, Fuels, and Air Quality – Dave Kinetader
Forest Vegetation – Dave Kinetader
NEPA Planning – Gretchen Jehle
Mining – Donna Duncan
Recreation – Erika Brenzovich and Jim Evans
Watershed and Soils – Kelby Gardiner
Wildlife – Colin Dillingham

FEDERAL, STATE, AND LOCAL AGENCIES:

Government Agencies and Community Organizations:
Rotary Club of Quincy, California; Quincy Chamber of Commerce; Plumas County Visitors Bureau; Plumas County Board of Supervisors; Plumas County Road Department; Central Plumas Parks and Recreation- Jim Bowland; Plumas County Environmental Health Department- Jerry Sipes; Plumas-Sierra Counties Department of Agriculture- Keith Mahan; California Department of Fish and Wildlife- North Central Region; California Fisheries & Water Unlimited- Bob Baiocchi; California Department of Water Resources; Central Valley Regional Water Quality Control Board; California Department of Food & Agriculture- Dean Kelch; and USDA-FS Pacific SW Region 5- Kathy Mick.

TRIBES:
Formal consultation was initiated with the following tribes:
Estom Yumeka Tribe of Enterprise Rancheria
Mechoopda Indian Tribe of Chico Rancheria
Tyme Maidu Tribe of Berry Creek Rancheria
Greenville Rancheria
Susanville Indian Rancheria
Concow Maidu Tribe of Mooretown Rancheria
Maidu Summit Consortium

OTHERS:

Adjacent Landowners:

Adjacent Mining Claimants:

Organizations:
Sierra Access Coalition- Corky Lazzarino and Kyle Felker; Sierra Buttes Trail Stewardship- Greg Williams; Soper Wheeler Company; High Mountain Riders- Diane Uchytil; Quincy Stables-Terry Howard; Greenhorn Creek Guest Ranch; River Dance; Backcountry Horsemen of California Sutter Industries; Horses Unlimited Inc.; Reid Land & Cattle; Indian Valley Riding and Roping; Plumas County Horsemen; Feather River College Equine Studies; Back Country Skiers- Phil Gallagher; Plumas-Sierra Bicycle Club; Plumas Audubon Society; Royal Elk Park Management; CNSA - Sylvia Mulligan; Thelma Olsen, Donna McElroy, Californians for Alternatives to Toxics- Vanessa Vasquez; Citizens Telecommunications of California; Paradise Ridge Riders- David Carey, John Rank, Robert VanCourt and Brian Walt; Blue Ribbon Coalition- Don Amador, Jerry Antonetti and Ric Foster; California Wilderness Coalition- Brent Schorad; Merced Dirt Riders-Michael Damaso; California DPR-OHMVR- Daphne Greene; High Mountain Rangers-Richard O'Rourke; Plumas Open Trails, Assn.- Greg Sawyer; NCWR D36- John Filippi; Sacramento PITS- Jeff Mason; The Wilderness Society- Joshua Hicks and Stan Van Velsor; Sonora Pass Sno-Goers; Paradise Ridge Runners- Fred Middleton; Chester Mountain
Sports- Shane Kelley; Ophir Gopher Jeep Club- Willard Bennett; and Western Outdoor News.

Other interested parties:


Comments Received – Organizations:
Acupressure- Susan Holmes, High Mountain Riders- Gina McGirr, Holos Institute-
Andrew Gentry Law, Mechoopda Indian Tribe of Chico Rancheria- Michael D. DeSpain,
DbA New England Ranch- Lane P. Labbe, Plumas County Horseman's Association- Marie
Anderson, Plumas-Sierra Bicycle Club - Steve Lindberg, Royal Elk Park Management-
Adam Damn, Sierra Access Coalition- Corky Lazzarino, Sierra Buttes Trails Stewardship –
Greg Williams, Soper Wheeler Company - Paul Violett and Dan Kruger.

Comments Received – Individuals:
James Alcorn, Marie Anderson, Melayne Baker, Tracy Ball, Jeff Barker, Robert Bartelt,
Mary Lou Battagin, Jim Battagin, Bill Battagin, Fred Benz, Rob Bixler, Roger Blair, Dave
Blau, Linda Blum, Ryan Booth, Linda Breedlove, Jeffrey Bowers, Jeff Brown, Gordon
Burton, Rose Buzzetta, Kenneth and Carol Casaday, Kathy & Terry Daley, Stephen Davis
& Katherine Dore, Tom DeMund, Darla S. DeRuiter, Jeffrey DeVries, Tuan Diep, Boyd and
Judy Earl, Kyle Felker, Len Fernandes, Rex Fisher, Rob Flesher, Morgan Fletcher, Dana
Flett, Dorothy Foster, Delaine Fragnoli, Kendra Fuller, Corey Gin, Larry Giunchigliani,
Eliad Goldwasser, Ryan Grenier, Wynae Hagwood, Linnea Hanson, Nancy Harris, JP
Harrison, Melinda Heard, Ron Heard, Melissa Hood, Deb Hopkins & Julie Kelner, Pam
Howard, Jim Huddleston, Mike Hulbert, Donna Hungerford, David W. Janes, Eric B.
Janes, Robert T. Janes, Aaron Johnson, Justin Jones, Patrick Jordan, Kimberly Kaznowski,
Phil Kaznowski, Brian Kelly, Casey Kempenaar, Curtis Kimble, Masao & Kathleen Kobashi,
Vickie Koskinen, Kirk Lambert, Jewdy Lambert, Corky Lazzarino, Patty Lenz, Tomas & Ms.
Marilyn Liddicoat, Nica Lorber, Deer Creek GIS - Zeke Lunder, Jim MacIntyre, George
Maier, Sean Martin, Cecelia Mauck, Chris Mcgovern, Carol & Thomas Miles, Ryan Miller,
Judith Moore, Jeffrey Murphy & Susan Vanduff, Patrick Myall, Jessica Nelson, Mark
Newton, Will Norton, Kursten O'Donnell, James O'Hare, Michael Olds, David Orozco,
Dale Pankey, Kris Parton, Mark Pecotich, Chris Pickett, Brad Polvorosa, J-C Poussin, Celia
Reynolds, Rigel Rivera, Susan Robinson, Gary & Marylou Hale Rodriguez, Paul Rogers,
Scott Rollins, L. Rosales, Daniel Sanders, Barbara Schoepf, Matt Sellers, Kevin Sevier,
Robert Shalit, Martin Scheel, Barbara Schoepf, Jeff Sparman, Elliott Smart & Jody
Johnson, Johnnie Smith, Sean Solway, Robert Stane, Rich Staley, Paul Stancheff, Michael
Stewart, Kurt Stephens, Carl Stevens, Inge Stock, Rick Stock, Michelle Stoddard, Lloyd
Stradley, Lori Tarin, Sally Thomas, Diane Uchytil, Raak Veblen, Kevin Verlander, Solomon
Waters, Toby Welborn, Brian Wenzel, Marilyn West, Ralph Wilcox, Tyler Wilson, Glen
Wilson, and James Wlinich.
APPENDIX A - MAPS

Map of Proposed Herbicide Treatment Locations

Map showing areas proposed for treatment of invasive plants.
Map of Proposed Watershed Improvements

Map showing roads and trails proposed for improvement or obliteration to mitigate impacts of the proposed action. Refer to the Mitigation section for more information. NOTE: The short segments proposed for obliteration east of the South Park trailhead and north of the Spanish Creek trailhead are secondary routes not discernible at this scale (25N33Y is not proposed to be obliterated).
APPENDIX B —BEST MANAGEMENT PRACTICES APPLICABLE TO THIS ASSESSMENT

Land management activities have been recognized as potential sources of non-point source water pollution. By definition, non-point source pollution is not controllable through conventional treatment plan means. Containing the pollutant at its source or precluding delivery to surface water controls non-point source pollution. Sections 208 and 319 of the Federal Clean Water Act, as amended, acknowledge land treatment measures as being an effective means of controlling non-point sources of water pollution and emphasize their development.

Working cooperatively with the California State Water Quality Board, the Forest Service has developed and documented non-point source pollution control measures applicable to National Forest System Lands. Following evaluations of the control measures by State Water Quality Board personnel as they were applied on site during management activities, an assessment of monitoring data, and the completion of public workshops and hearings, the Forest Service's measures were certified by the state and approved by the Environmental Protection Agency as the most effective means the Forest Service could implement to control non-point source pollution. These measures were termed "Best Management Practices" (BMPs). BMP control measures are designed to accommodate site-specific conditions. They are tailor made to account for the complexity and physical and biological variability of the natural environment. The implementation of BMPs is the performance standard against which the successes of the Forest Service’s non-point source pollution water quality management efforts are judged.

Below is a listing of Best Management Practices that would guide this project. A complete list and description of BMPs are available in the project record.

2.1 Travel Management Planning and Analysis
2.2 General Guidelines for the Location and Design of Roads/Trails
2.3 Road/Trail Construction and Reconstruction
2.4 Road/Trail Maintenance and Operations
2.5 Water Source Development and Utilization
2.6 Road Storage
2.7 Road Decommissioning
2.8 Stream Crossings
2.10 Parking and Staging Areas
2.11 Equipment Refueling and Servicing
2.12 Aggregate Borrow Areas
2.13 Erosion Control Plans (roads and other activities)
5.7 Pesticide Use Planning Process
5.8 Pesticide Application According to Label Directions and Applicable Legal Requirements
5.9 Pesticide Application Monitoring and Evaluation
5.10 Pesticide Spill Contingency Planning
5.11 Cleaning and Disposal of Pesticide Containers and Equipment
5.12 Streamside Wet Area Protection During Pesticide Spraying
5.13 Controlling Pesticide Drift During Spray Application
APPENDIX C - STANDARD MANAGEMENT REQUIREMENTS

Watershed

Protect water quality by using BMPs (see Appendix B), employed by the Forest Service and the State of California to prevent water quality degradation and to meet State Water Quality Objectives relating to non-point sources of pollution. In addition, use site-specific mitigation measures that relate directly to these BMPs to minimize erosion and resultant sedimentation.

Apply the Standards and Guidelines identified in the PNF LRMP Streamside Management Zones (SMZ) and Riparian Conservation Areas (RCAs). Activities in RCAs would maintain or improve the structure and function of the RCA and fish and wildlife habitat.

Botany

Protection for Plant Species:

Protect known Threatened, Endangered, Sensitive and Special Interest plant species according to Plumas National Forest current interim management prescriptions for specific species. If additional protected plant species are found during the life of the project, conduct an assessment and apply appropriate management prescriptions.

Invasive Plant Management

1. Require all off-road equipment and vehicles (Forest Service and contracted) used for project maintenance, construction, and reconstruction to be weed-free. Clean all equipment and vehicles of all attached mud, dirt and plant parts. This will be done at a vehicle washing station before the equipment and vehicles enter the project area.

2. All earth-moving equipment, gravel, fill, or other materials need to be weed free. Use onsite sand, gravel, rock or organic matter where possible.

3. Use weed-free equipment, mulches, and native seed sources during the revegetation of the project area.

4. Post project monitoring will facilitate the early detection of new populations of weeds and allow for developing proposals for treatment before populations get large.

5. Do not stage equipment, materials, or crews in noxious weed infested areas.

6. Implement invasive plant treatments. Ensure infestations along routes are under control and are unlikely to be spread before new routes with documented
7. Incorporate invasive plant locations discovered during project implementation into the weed treatment plan.

Cultural Resources

The proposed project has the potential to affect cultural resources. As outlined in the Programmatic Agreement, the following protection measures would be implemented, as appropriate, for all cultural resources located within the project area. The application of the following protection measures would result in the project having “no effect” on cultural resources and the Forest would have taken into account the effect of the project on cultural resource sites in compliance with the Programmatic Agreement and Section 106 of the NHPA.

If any unrecorded cultural resources (artifacts, features, or sites) are encountered as a result of project operations, all activities in the vicinity of such finds would immediately cease pending an examination by the District Archaeologist.

1. At a minimum, cultural resource sites shall be excluded from areas where activities associated with the project would occur.
2. All proposed activities, facilities, improvements and disturbances shall avoid cultural resource sites. Avoidance means that no activities associated with the project that may affect cultural resource sites shall occur within a site’s boundaries, including any defined buffer zones. Portions of the project may need to be modified, redesigned, or eliminated to properly avoid cultural resource sites.
3. All known cultural resource sites within the area of potential effect shall be clearly delineated prior to implementing any associated activities that have the potential to affect cultural resource sites.
4. Buffer zones may be established to ensure added protection where the Forest or District Archaeologist determines that they are necessary. The use of buffer zones in conjunction with other avoidance measures are particularly applicable where setting contributes to the property’s eligibility under 36 CFR 60.4, or where it may be an important attribute of some types of cultural resource sites (e.g., historic buildings or structures; historic or cultural properties important to Native Americans). The size of buffer zones needs to be determined by the Forest or District Archaeologist on a case-by-case basis.
5. When any changes in proposed activities are necessary to avoid cultural resource sites, e.g., project modifications, these changes shall be completed prior to initiating any activities.
6. Monitoring during project implementation, in conjunction with other measures,
may be used to enhance the effectiveness of protection measures.
7. Upon approval of the Forest or District Archaeologist, low intensity underburning may be allowed over selected prehistoric sites as long as fuel loads are relatively light.
8. The Forest or District Archaeologist may approve the use of mechanical equipment to remove brush or woody material from within specifically identified areas within site boundaries under prescribed measures designed to prevent or minimize effects. Vegetative or other protective padding may be used in conjunction with the Archaeologist’s authorization of certain equipment types within site boundaries.
9. Upon approval of the Forest or District Archaeologist, existing breaches within linear sites may be designated on the ground and reused for project activities.
10. Roads and trails that currently overlie historic linear sites may continue to be used as transportation routes without notification. However, if there are activities that would change the morphology of the existing road or trail (that is overlaying a historic linear site), these activities need to be reviewed by the Forest or District Archaeologist.
11. Roads proposed to be restored that extend through archaeological sites would need to be blocked instead of sub-soiled.
12. Vegetation may be removed within sites using hand tools, so long as ground disturbance is minimized and features are avoided. The removed vegetation shall not be piled within site boundaries unless the location has been specifically approved by the Forest or District Archaeologist.

Certain classes of undertakings are considered “Screened Undertakings” (Class B Undertakings). The Heritage Program Manager (HPM) shall determine whether specific undertakings subsumed in certain classes of undertakings (Class B) may be treated as Screened Undertakings under the 2013 Region 5 Programmatic Agreement (PA).
Screened Undertakings have no or little potential to cause effects to historic properties if they are present in an Area of Potential Effect (APE). If so determined, such Screened Undertakings must be certified by HPM and documented in writing. If the HPM determines that an undertaking would have an effect, would continue an on-going effect, or may affect historic properties, the undertaking shall not be considered a Screened Undertaking and shall be subject to the provisions of the 2013 Region 5 PA or 36 CFR part 800, as appropriate. Several PA exemptions are pertinent to this project. These are:

Appendix D-2.3
(g) Applications of pesticides or herbicides that do not have the potential to affect access to or use of resources by Indians based on the nature of the undertaking or prior or current consultation with Indian tribes;
(l) Routine trail maintenance limited to brushing and light maintenance of existing tread with hand tools, including chain saws;

(m) Trail maintenance of existing tread on slopes exceeding 30%;

(n) Routine road maintenance and resurfacing where work is confined to previously maintained surfaces, ditches, culverts, and cut and fill slopes within road prism, where there are no known historic properties

(o) Felling of hazardous trees along roadways, within recreation areas, or other areas for health and safety reasons provided they are left in place or cut up with hand tools, including chain saws, and removed by hand;

(o) Felling and removal of hazardous trees and wind thrown trees from road prisms where deemed necessary for health, safety, or administrative reasons, so long as trees are felled into and removed from existing road prisms (area clearly associated with road construction, from road surface to top of cut and/or toe of fill) where previous disturbance is such that the presence of historic properties is considered unlikely, and so long as ground disturbance is not allowed off previously disturbed areas associated with road prisms;

(r) Temporary or long-term closures of roads or trails involving no new ground disturbance

(w) Installation of any off-site historic property protection measures

(dd) Removal of non-native, invasive plant species using hand tools where such activities would not affect the integrity of historic properties present.

Effects not considered Screened Undertakings would need to be mitigated. These effects would include: new trail construction, widening of existing trails, construction of new trailheads, construction of a restroom facility, and accumulation of modern refuse within cultural resource site boundaries.

Wildlife

Wildlife Limited Operating Periods

Unless determined to be unnecessary following pre-implementation surveys, limited operating periods (LOPs) to protect key wildlife species listed in the 2004 SNFPA ROD (pages 54-62) and the Biological Evaluation/Biological Assessment (BE/BA) would apply.

New Wildlife Findings

Where subsequent surveys identify occupied threatened, endangered, or sensitive species habitat, establish PACs, den site buffers, or other protections as described in the SNFPA EIS (USDA 2004). Include protections for any additional sensitive species identified in the BE/BA. In the event of a verified TES species occurrence after project award, the appropriate LOPs would apply. Other mitigations may take place as agreed upon by the District Wildlife Biologist.