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Introduction
The purpose of this report is to provide an analysis of the potential effects of the Porcupine Vegetation and Road Management Project on scenic resources. Potential effects to scenery from the project are assessed within the context of direct, indirect and cumulative effects to scenery, and information required for findings under the National Environmental Policy Act.

Regulatory Framework
The National Environmental Policy Act of 1969 (42 U.S.C. 4321) directs the Federal Government to “(2) assure for all Americans . . . healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, [or] risk to health . . .; (4) preserve important historic, cultural, and natural aspects” of our environment. It further directs agencies to “insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man’s environment.” This act directs agencies to develop methods and procedures “which will insure that [scenery and other] unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations.”

Federal Law
Numerous Federal laws require all Federal land management agencies to consider scenery and aesthetic resources in land management planning, resource planning, and project design, implementation, and monitoring per the Forest Service Manual 2380.11a as described below:

1. The Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528 (note)) authorizes and directs the Secretary of Agriculture “to develop and administer the renewable surface resources of the National Forests” with “harmonious and coordinated management of the various resources . . . with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.”

2. The Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976 (16 U.S.C. 1601) directs the Secretary of Agriculture to prepare land management plans which provide for outdoor recreation and to develop and keep current a comprehensive inventory of all National Forest System, as well as state and private, lands and resources. The National Forest Management Act requires projects to be consistent with the Forest Plan. Section 6 of this act requires an assessment of potential aesthetic impacts during the interdisciplinary review of proposed timber sale areas that would include clearcutting and other cuts designed to regenerate an even-aged stand of timber. It also specifies treatment of cut blocks and protection of aesthetic resources, and directs that multiple use and sustainable yield guidelines be used with private lands involved with Government programs. The National Forest Management Act (NFMA) of 1976 (16 U.S.C. 1600 (note)) requires that the removal of trees, portions of trees, or forest products “be compatible with multiple use resource management objectives in the affected area.”
3. The rules in Title 36 of the Code of Federal Regulations, Part 219, Subpart A, National Forest System Land and Resource Management Planning (36 CFR part 219, subpart A), include requirements for consideration, treatment, and protection of intangible resources such as scenery and aesthetics.

4. The rules in Title 36 of the Code of Federal Regulations, Part 251, Subpart B, Special Uses (36 CFR part 251, subpart B), include requirements for permittees or holders to minimize damage to scenic and aesthetic values.

5. The rules in Title 36 of the Code of Federal Regulations, Part 223, Sale and Disposal of National Forest System Timber (36 CFR part 223), include requirements for protection of environmental quality and for minimizing adverse effects on, or providing protection for and enhancing, other National Forest System resources.

**Forest Plan**

Forest Plans are promulgated in compliance with the various statutory and regulatory direction, including NFMA. The Shasta-Trinity National Forest Land and Resource Management Plan (Forest Plan) provides standards and guidelines for projects affecting scenery management. The following excerpt is particularly pertinent to this project:

“In the following sensitive travel corridors the foreground portions (areas located from ¼ to ½ mile from the road viewer) will be managed primarily to meet the adopted VQO of PR [Partial Retention]:

(14) Powder Hill Road (43N49)” (Forest Plan 4-28)

The following standards and guidelines pertain to the Powder Hill Road corridor:

10. Timber management activities will be designed to meet recreation, visual and ecosystem management objectives. (Forest Plan 4-65)

12. Disperse openings created by timber harvesting throughout project areas. Size of openings will average 5 acres or less. (Forest Plan 4-65)

13. Manage to meet adopted Visual Quality Objectives (VQOs) of retention, partial retention, or modification as indicated on the adopted VQO map. Unseen areas within any mapped VQO may be managed for modification except in recreation river corridors. (Forest Plan 4-65)

**Prescription - XI, Heritage Resource Management. 11. Manage to meet visual quality objectives (VQOs) of preservation, retention, and partial retention of the site and the immediate area. (Pg 4-51)**

**Management Area**

There are two management areas plus two prescription areas within the Powder Hill Road corridor (the area of the project addressed in this analysis):

**Prescription – III. Roaded Recreation**
Management Area Direction – “The emphasis of vegetation management activities will be to meet recreation, visual, and wildlife objectives while maintaining healthy and vigorous ecosystems.” (Forest Plan 4-64) “Resource activities and modifications are evident, but they are in harmony with the natural environment setting.” (Forest Plan 4-65)

Prescription – Special Area Management designated due to the unique volcanic features.

Management Area Direction – There are not any proposed units within the Special Area Management designation that are in the Powder Hill Road corridor.

Management Area 1 - Porcupine Butte: This management area (MA) was shaped by cinder cones and successive lava flows that originated from the base of the Medicine Lake Volcano. The giant crater lava flow, which covers much of the MA exhibits a relatively barren landscape typified by lava fields, ice caves, craters, and lava tubes. The predominant existing vegetation types in this MA are ponderosa pine-bitterbrush associations at lower elevations and white fir forests at higher elevations (Forest Plan 4-75).

Management Area 2 – McCloud Flats: The geography of this MA is characterized by level to gently sloping basalt flows, alluvial basins, escarpments, cinder cones and volcanic buttes. It is dominated by white fir mixed conifer forest types (Forest Plan 4-79).

Table 1 – Summary of Regulatory Compliance Requirements

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<td>Forest Plan</td>
<td>Powder Hill Road (43N49) will be managed to primarily meet Partial Retention VQO in areas located from ¼ to ½ mile from the viewer on the road.</td>
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Medicine Lake Highlands Traditional Cultural Property (TCP)
The Medicine Lake Highlands TCP was designated after the Forest Plan was adopted, so there are not any VQOs assigned to this specific area. However, there is general guidance in the Forest Plan as noted below. In addition to addressing scenery per the Forest Plan, this report will analyze the proposed project as seen from the TCP due to the close proximity.

Issues and Issue Indicators

Issues Identified During Scoping
There were no key issues identified during scoping for the scenery resource area.

Resource Concerns Identified through Internal Scoping
A resource concern was identified by the Forest Landscape Architect that Green Tree Retention (GTR) unit 48-221 on Powder Hill Road would not meet the required Partial Retention VQO; as a result the portion of the unit adjacent to Powder Hill Road would not be treated, in order to meet the Forest Plan required VQO.
Indicators
The indicators utilized in this analysis are the Visual Quality Objectives as defined by the Visual Management System and are the indicator measurement for scenery in the Shasta-Trinity Land and Resource Management Plan (Forest Plan).

Alternatives
Alternatives Considered in Detail

Alternative 2a
Alternative 2a would reduce forest stand density levels and fuels on approximately 3818 acres, including two meadow restoration units totaling 26 acres and one 21-acre unit of aspen restoration. Alternative 2a differs from the Proposed Action in that it does not include the fuelbreak, has one less meadow restoration unit, one less standard thinning unit and two units have different silvicultural prescriptions (49-365 and 39-065). Additionally, Alternative 2a includes two additional fuel treatment prescriptions not included in the Proposed Action: Hand Pile and Burn on approximately 114 acres (units 38-64 and 38-68). Two acres of this would be applied to a strip 50 feet from the Powder Hill Road in units 48-200, 201, and 202 to maintain visual quality, plus, underburning 50 percent on approximately 591 acres.

Alternative 2a includes the following units on Powder Hill Road, which will be analyzed for possible impacts to the scenic resource in this report:

Unit 48-200: standard thin down to 4”dbh to 120 sq ft/ac basal area; whole tree yard, hand pile 50’ along road; burn piles, burn landing

Unit 48-201: standard thin down to 4”dbh to 120 sq ft/ac basal area; whole tree yard, hand pile 50’ along road; burn piles, burn landing

Unit 48-202: (small edge of unit on road) Biomass thin; thin 4-13” dbh to 120 sq ft/ ac; whole tree yard, hand pile road 50’; burn piles and burn landings

Unit 48-216: standard thin down to 4”dbh to 120 sq ft/ac basal area; whole tree yard and burn landings

Unit 48-220: standard thin down to 4”dbh to 120 sq ft/ac basal area; whole tree yard; underburn and burn landings

Unit 48-221: Lodgepole regeneration with green tree retention – harvest most trees four inches in diameter and greater. Retain at least 15 percent of the stand to meet the Forest Plan standards for green tree retention. Natural regeneration following harvest is expected to result in a fully stocked stand of seedlings within five years. Leave the largest, healthiest trees within the unit at an average of six trees per acre.

Unit 48-225: standard thin down to 4”dbh to 120 sq ft/ac basal area; whole tree yard; underburn and burn landings.
The Proposed Action - Alternative 3a
The proposed action would reduce forest stocking levels and/or fuels on approximately 3,965 acres. In addition, approximately 48 acres of meadow and 21 acres of aspen would be restored. Meadow restoration would include decommissioning two existing roads. Alternative 3a is responsive to the issue regarding the regeneration of over-mature stands (stands with declining vigor and health, nearing the end of the life cycle). One predominantly ponderosa pine stand (unit 48-365) would be treated with a regeneration harvest including green tree retention. The additional opportunities to meet the Purpose and Need include standard thin in one additional stand (31-227), and restoration of one additional meadow unit (48-227). Treatment prescriptions are described individually here.

Alternative 3a includes the following units on Powder Hill Road, which will be analyzed for possible scenic resource impacts in this report:

Unit 31-227: standard thin down to 4” dbh to 120 sq ft/ac basal area, whole tree yard to landings, underburn and burn landings (This unit is not in Alt 2a)

Unit 48-200: same as Alternative 2a except no hand piles along the road; whole tree yard and burn landings

Unit 48-201: same as Alternative 2a except no hand piles along the road; whole tree yard and burn landings

Unit 48-202: (small edge of unit on road) biomass thin as in Alt 2a; thin 4” dbh to 120 sq ft/ ac; whole tree yard and burn landings

Unit 48-216: same as Alt 2a

Unit 48-220: same as Alt 2a

Unit 48-221: same as Alt 2a

Unit 48-225: same as Alt 2a

Alternative 3b (Preferred Alternative)
Alternative 3b is the same as alternative 3a on 2,434 of the project acres. The remaining acres would include the addition of an adaptive management strategy for completion of the biomass thinning prescription depending on biomass product conditions at the time of implementation. Biomass may be treated as part of the planned timber sale if agreed to by the purchaser and the U.S. Forest Service just as described under Alternative 3a. If an agreement is not made the biomass sized material would be treated using an adaptive management strategy. Units 48-200, 48-201 and 48-202, seen from Powder Hill Road, would have mechanical mastication to implement the biomass thinning rather than commercial biomass removal.
Alternative 7 - No Machine Piling
Alternative 7 is responsive to the key public issue regarding machine piling. The public raised concerns about the potential for detrimental soil compaction resulting from piling activities. It is identical to alternative 3a for silvicultural and underburning treatments. The Fuels treatments have been adjusted to eliminate machine piling by replacing it with slashing. In addition to whole tree yarding, a total of 704 acres would be treated with slashing which may be accomplished through hand treatments or machine mastication. Road actions would remain the same.

No Action
Proposed management activities would not be implemented under this alternative. This alternative provides a baseline of conditions used to compare the environmental effects of the action alternatives.

Treatments

The following treatments would be included in Alternative 2a, the Proposed Action - Alternative 3a, Alternative 3b (Preferred Alternative) and Alternative 7:

Standard Thin
Overstocked forest stands would be thinned by removing primarily understory and midstory trees to achieve desired stocking. Some dominant and codominant trees may be removed to attain desired stocking. Treatment objectives include improve stand health and tree growth, improve resistance to insect mortality, remove ladder fuels, shift species composition, and improve the growth of shrub and forage species. Excess trees would be removed as sawlogs where possible (trees 10 inches and greater in diameter) and for biomass material (trees 4 to 9.9 inches in diameter). All standard thin units are in the Matrix land allocation and the upland edges of Riparian Reserves. Treatment prescriptions are as follows: Commercial Wood Products Emphasis and Roaded Recreation – thin from below (to 4 inches minimum dbh) to a target basal area of approximately 120 square feet per acre Roaded Recreation – Spacing of leave trees should be irregular; Wildlife Habitat Management – Thin from below (to 4 inches minimum dbh) to a target basal area of approximately 100 square feet per acre to encourage forb and shrub development.

Biomass Thin
Overstocked forest stands would be thinned from below by removing primarily understory trees to achieve desired stocking. Most trees to be removed would range from 4 to 13 inches in diameter and the harvest would yield primarily biomass material. Some trees larger than 13 inches would be removed to achieve treatment objectives.

Hazard Reduction
Stands would be thinned by primarily removing trees 4 to 13 inches in diameter. The objective is to remove ladder fuels in stands with late-successional characteristics and reduce the likelihood of stand replacing disturbances such as crown fire or high levels of insect-caused mortality that would result in the loss of key late-successional structure.
Mature Stand Thin
Thin to desired stocking levels by primarily removing trees in the suppressed and intermediate crown classes. Some codominate trees may also be removed to achieve desired basal area. Trees 4 inches in diameter and greater would be cut and removed to meet basal area objectives.

Lodgepole Regeneration with Green Tree Retention Overmature lodgepole pine would be regenerated by harvesting most trees 4 inches in diameter and greater. At least 15 percent of the stand would be retained uncut to meet the Forest Plan standard for green tree retention. Natural regeneration following harvest is expected to result in a fully stocked stand of seedlings within 5 years of the harvest.

Ponderosa Pine - Regeneration with Green Tree Retention
Overmature ponderosa pine would be regenerated by harvesting most trees 4 inches in diameter and greater. At least 15 percent of the stand would be retained uncut to meet the Forest Plan standard for green tree retention. Natural regeneration following harvest is expected to result in a fully stocked stand of seedlings within 5 years of the harvest.

Reduce Fuels
Forest fuels would be reduced within harvest units by decreasing understory and mid-story stocking. Other fuel treatments would include slashing, hand pile and burn, machine pile and burn, and underburn.

Maintain Aspen, Meadow and Riparian Upland
One aspen stand would be treated by removing conifers followed by underburn. Two meadows would be restored by removing encroaching conifers. Approximately 10 acres of ponderosa pine forest along the outer edges of riparian habitat would be thinned to maintain the health and growth of the pine.

Resource Protection Measures Common to All Alternatives Relevant to the Scenery Resource
- Cut tree stumps within 150 feet of the road edge to a height of 6 inches or less.
- Enhance the view of existing large-diameter, remnant trees and hardwood inclusions.
- Locate landings and skid trails away from the highway where possible. Scatter unburned remnants of slash piles if seen from Powder Hill Road.
- Conduct underburning in a manner to minimize damage to the residual stand.

Analysis Methodology
The Shasta-Trinity Land and Resource Management Plan utilizes the Visual Management System (VMS) to reduce scenery impacts caused by management activities. VMS utilizes the distance of the project from the viewer, duration of the view, variety class and the sensitivity level of the viewpoint to assess visual impacts. During the Forest Planning effort various Visual Quality Objectives (VQO’s) were established for areas seen with high and moderate sensitivity. VQO’s indicate allowable changes to scenery as a result of management activities. The VQO definitions and the VMS process are outlined below.
Visual Management System and Scenery Management System

The Forest Plan incorporated the VMS system, however currently the FSM 2380 identifies that the Visual Management System is superseded by the Scenery Management System (SMS). The differences between the two systems are summarized by the following: “While the essence of the system [VMS] remains essentially intact, still supported by current research, terminology has changed and the system has been expanded to incorporate updated research findings. Conceptually, the SMS differs from the VMS in that: it increases the role of constituents throughout the inventory and planning process; and it borrows from and is integrated with the basic concepts and terminology of Ecosystem Management. The Scenery Management System provides for improved integration of aesthetics with other biological, physical, and social/cultural resources in the planning process.”

Current policy directs that SMS may be used on project by project basis, if the Forest Plan references the VMS. However when the Forest Plan is revised it would reference the SMS and be used on all projects thereafter. The analysis for the Porcupine Project utilizes the VMS, since the current Forest Plan references this system. However, the report references ‘scenic resources’ and scenery versus ‘visual resource’ because the word scenery appears to communicate the intent of the analysis better.

Visual Quality Objectives (as defined by the Visual Management System):

- **Retention**: Management activities are not evident to the casual forest visitor.
- **Partial Retention**: Management activities may be evident, but must remain subordinate to the characteristic landscape.
- **Modification**: Management activities may dominate the characteristic landscape, but must follow naturally established form, line, color, and texture characteristics.
- **Maximum Modification**: Management activities may dominate the characteristic landscape, but must follow naturally established form, line, color, and texture characteristics and should appear as a natural occurrence when viewed as background.
- **Unacceptable Modification**: Size of activities is excessive or poorly related to scale of landform and vegetative patterns in characteristic landscape. Or overall extent of management activities is excessive. Or activities or facilities that contrast in form, line, color, or texture are excessive. All dominance elements in the management activity are visually unrelated to those in the characteristic landscape. Unacceptable modification includes those visual impacts, which exceed 10 years duration.

Visual Management System Components

Described below are the Visual Management System components that were used to develop the VQO’s for the Shasta-Trinity National Forest:

**Sensitivity Level**

Sensitivity levels are a measure of people’s concern for the scenic quality of an area. Travel routes, use areas and water bodies were rated according to the volume of use, duration and national or local importance.
Distance Zones:
The distance from which a landscape is viewed has an effect on how much detail, pattern, color, line, and texture a viewer sees. To capture this difference, various distance zones are established from sensitive viewing areas:

- **Foreground** – The portions of a view between the observer and up to ¼ to ½ mile distant. The surface patterns on objects and visual elements are important in the ‘foreground’ views.
- **Middleground** – The portions of a view between ¼ to ½ mile and three to five miles from the observer, (actual distance depends on actual viewing distances).
- **Background** – The view beginning 3 to 5 miles from the observer and as far into the distance as the eye can detect the presence of objects.

Variety Class
A third component of the scenic environment relates to the degree of variety within a visual landscape (variety class). The more distinctive the variety class the more restrictive the visual quality objective (VQO). For instance, if a site has unusual features such as water features or distinctive rock outcroppings, the landscape would be classified as a higher variety class. While, if a landscape has no distinctive features and has monotonous vegetation, if would be viewed as a more ‘common’ landscape, i.e. less visually interesting.

Information Sources
The existing condition was derived from site visits and consultations with fuels and silviculture specialists.

Methodology Used to Analyze and Determine the Extent of Effects to the Resource
Site methodology comprised of site visits, photos, Forest Plan Standards and Guides, researching the Visual Management System, the Scenery Management System, other research, plus 20 years of experience.

The Shasta-Trinity Forest Plan was read to discern the sensitive viewing areas and required VQO within this project. The VMS was researched in how to interpret the VQO of Partial Retention for the proposed actions for the existing condition, i.e. the vegetation type, topography, view duration and viewing distance. The effects of the proposed actions were compared to previous projects that utilized the same proposed actions along Powder Hill Road.

A shortcoming of the methodology would be the subjective perceptions of the person performing the analysis and projecting what a ‘casual forest observer’ may or may not notice while driving on Powder Hill Road.

Views from the Medicine Lake Highlands TCP
The methodology utilized to assess potential scenery affects to the TCP included the Medicine Lake Highlands Aesthetic Evaluation, 2004, Mosier/Joyce, 1998, Digital Orthoquad maps (NAIP) of the proposed project area and photographs taken from the highpoints within the TCP. The NAIP maps show what management activities were within the proposed project area at the time that the photographs were taken from the highpoints. If the existing management activities could not be seen at the time of the study, it is reasonable to deduce that the proposed management activities of similar size or smaller would not be able to be seen after implementation.
Cumulative Effects Analysis Parameters
Past, present, and reasonably foreseeable future actions\(^1\) were considered, in order to assess accumulated impacts. According to the Council on Environmental Quality NEPA regulations, a “cumulative impact” is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR 1508.7).

Spatial and temporal boundaries are the two critical elements to consider when deciding which actions to include in a cumulative effects analysis. The effects of those actions must overlap in space and time for there to be potential cumulative effects. This is determined by how long, and how far reaching, direct and indirect effects of a project are felt on a given resource area. The effects of those actions must overlap in space and time for there to be potential cumulative effects (FSH 1909.15 (15.2)).

Spatial Context for Cumulative Effects Analysis
The spatial context for this analysis are foreground views (1/4 to ½ mile) as seen from sensitive viewing areas per the Forest Plan, Visual Management and Scenery Management Systems. Only the foreground views are considered for analysis because the project is located on a very flat and timbered landscape. It is highly unlikely that a person could see beyond ¼ mile. The cumulative effects analysis area for the TCP would be views as seen from the highpoints into the proposed Porcupine Project Area.

Temporal Context for Cumulative Effects Analysis
The temporal effects timeframes for short term vs. long term for direct, indirect and cumulative effects are based upon professional experience. There are no known references for what constitutes time frames for scenery, since re-vegetation is dependent upon many variables including site productivity and micro-climates or if the site is manually replanted. This scenery analysis identifies short term as one to five years post treatment, since at a minimum, grasses, forbs and shrubs would usually grow within this timeframe and reduce impacts to scenery. Long term could be considered longer than 5 years.

Past Actions
This cumulative effects analysis does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis.\(^2\) The current environmental conditions reflect the

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\(^1\) A reasonable attempt to list potentially relevant past, present, and future actions within the Bear Creek, Medicine Lake/White Horse Flats, and Fall River watersheds (Porcupine Project general cumulative effects review area\(^1\)) that surround the project was made. The interdisciplinary team reviewed the general cumulative effects review area for activities that are contained within or intersect the area utilizing the following sources: Forest Activities Tracking database for the Shasta-Trinity, Lassen, and Modoc National Forests, CALFIRE’s timber harvesting status table (for THPs submitted to CALFIRE) and CALFIRE’s Forest Practice Geographical Information System timber harvest data in ERSI formats (for THPs approved, completed, etc.), the Schedule of Proposed Actions for the Shasta-Trinity, Lassen, and Modoc National Forests, and Forest personnel for past, present, ongoing and future activities. Appendix D in the EA provides this catalogue.

\(^2\) There are several reasons for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions over the last century (and beyond), and trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not always be useful to predict the cumulative effects of the proposed action or alternatives. In fact, focusing on individual actions
aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects and can be used as a proxy for the impacts of past actions.3

**Desired Condition**

The desired landscape character is a forest with a healthy ecosystem that primarily looks natural from sensitive viewpoints. Areas adjacent to Powder Hill Road would have a multi-faceted vegetation structure which would include hardwoods and clumps of understory with randomly spaced mature trees. “Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Stand understories appear more open with less ingrowth particularly in stands on sites where wildfire plays a key role in stand development. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms.” (Forest Plan 4-80 – 4-81)

“Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Management activities are evident but subordinate to the viewer within this area.” (Forest Plan 4-76)

The desired VQO is Partial Retention in the foreground of Powder Hill Road per the Forest Plan 4-28.

The scenic desired future condition of the TCP would support traditional values and honor the ‘sense of place’ or ‘setting’ within the TCP and views seen from the TCP, especially the highpoints. The proposed actions would meet a Retention VQO in the foreground, Partial Retention VQO in the middleground and Modification VQO in the background if concepts from the Visual Management and Scenery Management Systems were applied to the TCP. The Forest Plan identifies VQO’s of Preservation, Retention and Partial Retention of the site and the immediate area, but does not address more distant views which would be important to the experience and setting of the high points within the TCP.

**Affected Environment**

**Existing Condition**

The McCloud area boasts of flat terrain punctuated with hills covered in prolific mixed conifer stands with a variable understory. The project area is within the Northeast Volcanic Landscape Character type which is a relatively flat volcanic flow with stands of tall conifers. Primarily only foreground views can be seen due to the flat terrain. The existing scenery ranges from management activities being unnoticed (Retention VQO) to dominating the landscape (Modification VQO) as seen from Powder Hill Road due to prior vegetation management activities, power lines and roads.
A portion of the project area is within the foreground view of Powder Hill Road. The Forest Plan identifies that the foreground views from this view must meet a minimum of Partial Retention VQO. The units considered for scenery analysis within this corridor are: 31-227, 48-200, 48-201, 48-202, 48-216, 48-220, 48-221 and 48-225. Other units are unseen from the Forest Plan identified sensitive viewing area of Powder Hill Road, thus will not be analyzed for affects to the scenic resource. Only the foreground views are considered for the afore mentioned units because the project is located on a very flat and timbered landscape; it is highly unlikely that a person could see beyond ¼ mile.

Adjacent to the proposed project area, the existing condition or also referred to as ‘setting’ or ‘sense of place’ varies within the TCP. Interesting lava geologic features, Medicine Lake, complex topographic relief and diverse vegetation contribute to a very special, visually intriguing landscape. The VQO’s range from Retention to Modification due to prior vegetation management activities, roads, buildings and cellular structures. The setting is influenced by the views, line of sight, visitor expectations, values and proximity to the manmade changes to the landscape. Each location offers a unique human experience due to it’s natural environment. The high points within the TCP that would have the most likelihood of seeing the project area are Six Shooter Butte, Yellowjacket Butte and Shotgun Peak, thus analysis will address views from these high points.

A Special Interest Area (SIA) within the project area does not have any units within it, however thinning and biomass units 39-63, 39-67, 47-100 and 48-200 are adjacent to the SIA. The Forest Plan VQO map identifies that the SIA has a VQO of Retention, unit 39-63 has a VQO of Partial Retention and units 39-67, 47-100 and 48-200 have a VQO of Modification.

Environmental Consequences

Direct, Indirect and Cumulative Effects (for Alternatives Considered in Detail)

Alternative 2a

Direct Effects / Indirect Effects
Units 48-200, 48-201, 48-216, 48-220, 48-225 in Alternative 2a would be treated with a standard thin which would remove primarily understory and midstory trees; some dominant and codominant trees may be removed to attain desired stocking. Whole tree yarding, machine piling and burning piles and landings would manage excess slash materials. Research has found that large mature trees are an important part of scenic beauty and should be retained in forest thinning projects. Forests with more open structure that allow visual access through the understory are considered more scenic than forests with extremely dense understory vegetation. Partial clearing of up to 50% of trees in a dispersed pattern may be visually acceptable in moderately sensitive area, especially if large trees are preserved. Downed wood from timber harvesting and tree thinning is considered ugly and has negative impact on scenic beauty. Removing dead wood or chipping on site can greatly increase scenic ratings for tree thinning projects.

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Many people consider larger, vigorous trees appear more scenic than small overstocked trees with dense understory. The mature trees, increased visual access, and light-shadow patterns emulate a park-like setting which can be very scenic.

Thinning these units may create meadow like openings and the mature tree stands would enhance visual diversity in form, color, texture, and scale in vegetative material, which is seen as more interesting than a monotonous landscape.

Based on research, thinning may improve the scenery resource in the long term when the scenery project design features are incorporated into the harvest activities. The reduced stocking would allow more visual access through the forest, increase the probability of understory vegetation growth and increase the amount of light into the forest, all of which increase visual interest.

After the proposed thinning, the remaining trees and shrubs would still dominant the views rather than the residual effects of the management action, such as stumps or remaining limbs, thus the management action would meet a VQO of Partial Retention upon project completion. The whole tree yarding would leave minimal of residual slash and remaining shrubs would diminish the views of stumps. Please see the photos in Appendix A which compares a unit that was harvested last year with a similar prescription to a proposed treatment unit across the road. Machine piling could disturb the soil and leave undulations which may be noticed; however whole tree yarding would minimize the need for excess machine pile activities.

Unit 48-202 would be a biomass thin that would remove primarily understory trees which would range from 4 to 13 inches in diameter. This prescription would have similar results to the standard thin. However, one difference may be that larger trees would be left in the biomass thin which could look more attractive from a scenery perspective. Still both the treatments would meet the VQO of Partial Retention upon project completion because the forest would dominate the views rather than the management action.

Units 48-200, 48-201, 48-202 also include hand piling within 50 feet of the Powder Hill Road. This treatment would reduce any residual slash and would have small slash piles for approximately 1 year after treatment. The forest floor would look ‘cleaner’ which may be more attractive per research. The hand piles may be noticeable; however the forested environment would still dominant the views providing for the management action to meet a VQO of Partial Retention upon project completion.

Units 48-220 and 48-225 would be underburned in a mosaic pattern to manage fuels. The Agricultural Handbook 608, page 16 states that “Prescribed fire can often be used to create or maintain visually attractive combinations of trees, shrubs, herbaceous plants, and grasses.” Ponderosa pine can be maintained by reducing the competition of the more shade –tolerant white fir through underburning. The mosaic burn would leave pockets of existing shrubs and grasses while regenerating new growth. The new growth would add a different range of greens and other colored shrubs. The new forbs, grasses and shrubs would also add a variety of textures to the existing vegetation. The underburn would blacken the tree boles, earth and other vegetation. This would be the most noticeable immediately after treatment, however would be substantially less noticeable the following year when the grasses and forbs reestablish. Long term the mosaic burn would support a visually interesting landscape by regenerating the understory.
Short term the effects of the burn may be noticed, however the remaining green trees and shrubs would dominate the views which would meet a VQO of Partial Retention upon project completion.

Unit 48-221 would be a lodgepole regeneration green tree retention treatment. The Visual Management System states that, “A forested landscape character is required in the immediate foreground to meet the VQO [Partial Retention].” A regeneration harvest would not meet this criteria, thus would not meet the VQO. In order to meet the VQO, a 100’ buffer in the foreground view of the Powder Hill Road was incorporated into the design features. The unit probably would be unnoticed from the road due to the vegetative screening, length of the unit and speed of travel, thus meet the required Partial Retention VQO.

The Medicine Lake TCP boundary is adjacent to the proposed project area boundary; however there are not any proposed actions within the TCP. The closest proposed units are approximately one mile from the boundary. The units would be unseen from the lower elevation areas within the TCP due to the distance, greater than ½ mile, and foreground vegetation. The high points of Six Shooter Butte (Key Observation Point (KOP 1), Yellowjacket Butte (KOP 2) and Shotgun Peak (KOP 3) would be the most likely places that the proposed project would be seen, if at all. The majority of the proposed units would have thinning prescriptions and would not create any large scale openings, thus the oblique forested views would result in the units being unseen from the highpoints by a casual forest observer. Prescriptions that could create more openings in the forest canopy would be: the aspen release: unit 48-207 (21 acres), meadow restoration: 48-208 (14 acres), 48-227 (22 acres), and regeneration/green tree retention: 48-221 (27 acres), 48-222 (21 acres), and 48-223 (16 acres). The proposed units are located approximately one to 12 miles from the TCP boundary. The largest potential opening would be approximately 23 acres (unit 48-221 with 15 percent of green tree retention). The 1998 NAIP maps show canopy openings within the proposed project area of equal size to the proposed units, please see Appendix B4. The Medicine Lake Highlands Aesthetic Evaluation (2004) assessed views as seen from the TCP boundary; therefore, the proposed project canopy openings would also be unseen from the high points, please see photos in Appendix B3. The proposed project would not affect the ‘sense of place’ or ‘setting’ experienced within the TCP, so there would not be any direct, indirect or cumulative effects.

Thinning and biomass units adjacent to the Special Interest Area (SIA) are 39-63, 39-67, 47-100 and 48-200. The units cannot be seen from the Forest Plan sensitive viewing area, Powder Hill Road. The Forest Plan VQO map identifies that the SIA has a VQO of Retention, unit 39-63 has a VQO of Partial Retention and units 39-67, 47-100 and 48-200 have a VQO of Modification. There would not be any units within the SIA, thus it would meet the Retention VQO. Views toward the units, as seen from the SIA would slightly change due to the thinning and biomass prescriptions, however the stands would remain forested and there would not be significant visual changes. The aforementioned units would meet the VQO map requirements.

Proposed Action - Alternative 3a:

Direct Effects / Indirect Effects

Alternative 3a is the same as Alternative 2a for the scenic resource for units 48-216, 48-220, 48-221 and 48-225, thus the scenery assessment would be the same for both alternatives for those units.
An additional unit, 31-227 is included in this alternative. The analysis for impacts to scenery would be the same as unit 48-220 in Alternative 2a. In addition, this unit would be located across the road from unit 48-220. From a scenery perspective treating this unit as well as the unit across the road would help the consistency of the views. Having a highly vegetated area on one side of the road and a thinned area across the road would increase the contrast making the treated unit more obvious. The continuity of the form, line, color, and texture of the natural landscape and of the management actions would reduce the contrast which would reduce how much a person would notice any changes to the forest. Therefore, treating both sides of the road would benefit the views from a scenery perspective.

Units 48-200 and 48-201 would not be hand piled within 50’ of Powder Hill Road, as in Alternative 2a, thus there may be more slash left on the ground, but the hand piles would not be seen either. The amount of residual slash should be at a minimum due to the whole tree yarding, so this action should meet a VQO of Partial Retention upon project completion.

In this alternative, unit 48-202 would be a biomass thin without burn piles. Unit 48-202 would be a biomass thin which would remove primarily understory trees which would range from 4 to 13 inches in diameter. This prescription would have similar results to the standard thin. However, one difference may be that larger trees would be left in the biomass thin which could look more attractive from a scenery perspective. Still both the treatments would meet the VQO of Partial Retention upon project completion because the forest would dominate the views rather than the management action. There may be more slash left on the ground, but the hand piles would not be seen either. The amount of residual slash should be at a minimum due to the whole tree yarding, so this action should meet a VQO of Partial Retention upon project completion.

The effects of Alternative 3a on the TCP would be the same as Alternative 2.

The effects of Alternative 3a on the SIA would be the same as Alternative 2.

**Alternative 3b (Preferred Alternative)**

Alternative 3b would have the same proposed action as Alternative 3a for units 31-227, 48-216, 48-220, 48-221 and 48-225, thus the direct and indirect effects would be the same. Units 48-200, 48-201 and 48-202, seen from Powder Hill Road, would have mechanical mastication to implement the biomass thinning, all other proposed activities would be the same as Alternative 3a. Based on other projects, the resulting woody debris from the mechanical mastication could be visible for one to 2 years after the treatment. It may look like crushed, small pieces of wood one to two feet deep in places. Eventually, the woody debris would biodegrade into the earth. The results of the mastication may be seen, but it would not dominate the landscape and thus would meet a VQO of Partial Retention upon project completion.

The effects of Alternative 3a on the TCP would be the same as Alternative 2.

The effects of Alternative 3a on the SIA would be the same as Alternative 2.
No Action

Direct Effects / Indirect Effects
Scenery would remain as is for the No Action Alternative, thus there would be no direct or indirect effects. No Action would be the least preferred alternative from a scenery perspective. The No Action alternative could contribute to the future landscape character by perpetuating a forest with dense under growth which would have less visual diversity and inhibit the sight distance of the viewer, thus resulting in a less interesting visual experience.

This alternative could result in an increased tree mortality which would look ‘natural’, but may not meet the publics’ expectations to see a green and healthy forest. Taking no action could possible increase the risk of a high intensity fire. Charred, denuded forests are usually not preferred scenery. The indirect effects to scenery could be detrimental. Overstocked stands prevent visual access into the forest, provide a more monotonous view and may keep the trees smaller which could be considered less scenic than larger trees.

Alternative 7: No Machine Piling

Direct Effects / Indirect Effects
This alternative responds to the public issue of no machine piling to reduce detrimental soil compaction resulting from treatment activities; excess slash would be masticated. It is identical to Alternative 3a for silvicultural treatments, thus the effects to scenery would be the same as Alternative 3a. There would be a slight difference in ground disturbance and masticated slash. The effects of these activities should be minimal due to the whole tree yarding should remove most of the woody debris from harvesting activities. Masticated slash may be noticed more than soil disturbance would be from machine piling, however the large piles would be noticed more than the woody debris from mastication.

Cumulative Effects
There are no cumulative effects for any of the alternatives since there would be no impacts to the VQO’s as seen from the Powder Hill Road, Medicine Lake TCP and the Special Interest Area. There would be some changes to scenery; however, the changes would be below the threshold of changing the VQO beyond the Forest Plan acceptable amount. VQO’s are the measurement used to indicate scenery effects, since there would be no effects in terms of VQO’s there cannot be cumulative effects.4

Regulatory Compliance
All alternatives studied in detail would meet the Forest Plan VQO’s upon project completion.

Effects Relative to Significance Factors (40CFR 1508.27)
The Proposed Action has potential context with the following significance factor under NEPA.

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4 Some past actions and natural events may overlap in time and space with the proposed action. However, past actions are not being considered individually. The current environmental conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects and are a proxy for the impacts of past actions. This approach is consistent with § 220.4 (f) and the Council on Environmental Quality June 24, 2005 memorandum regarding analysis of past actions.
Beneficial and Adverse Impacts (CFR 1508.27(b)(1))

**Context** – As described in the effects analysis, the action alternatives considered in detail may temporarily detract from visual attractiveness with the creation of slash and stumps. Simultaneously, the mature trees, increased visual access, and light-shadow patterns of the treatments emulate a park-like setting which can be very scenic.

**Intensity** – Neither adverse or beneficial impacts to visual quality will result in a change from the Forest Plan required Partial Retention VQO.

Both beneficial and adverse impacts have been considered in the evaluation of the environmental consequences of the proposed action and alternative actions. Beneficial effects have not been used to offset or compensate for potential adverse effects. Singularly and collectively, the visual resources affected by the proposed activities in all alternatives considered in detail are not expected to experience significant impacts.

Unique Characteristics of the Area (CFR 1508.27(b)(3))

**Special Interest Area**

**Context** – Units 39-63, 39-67, 47-100 and 48-200 adjacent to the SIA would meet the Forest Plan VQO requirements. Views of the SIA would remain as existing and the special characteristics of the SIA would not be impacted with the proposed activities. Views toward the units, as seen from the SIA would slightly change due to the thinning and biomass prescriptions, however the stands would remain forested and there would not be significant visual changes.

**Intensity** – While the units abut the geologic special interest area boundary, there are no proposed activities within it; the actual geologic features are to the north and east of the unit. The proposed action includes a minor, non-significant amendment to the Forest Plan to correct the Special Interest Area boundary to more accurately reflect the location of the geologic features.

**Medicine Lake Highlands TCP Scenic Resources**

**Context** – The TCP boundary is adjacent to the proposed project area boundary; however there are not any proposed actions within the TCP. The closest proposed units are approximately one mile from the boundary. The high points of Six Shooter Butte (Key Observation Point (KOP1), Yellowjacket Butte (KOP 2) and Shotgun Peak (KOP 3) could have possible views towards the project area, however NAIP and photo studies showed that the proposed units would not be noticed from the TCP.

**Intensity** – The proposed units are located approximately one to 12 miles from the TCP boundary. NAIP and photo studies showed that the proposed units would not be noticed from the TCP. Therefore, the proposed project would not affect the ‘sense of place’ or ‘setting’ experienced within the TCP, so there would not be any direct, indirect or cumulative effects.

The visual resources affected by the proposed activities in all alternatives considered in detail are not expected to experience significant impacts to unique characteristics of the area, specifically the geologic special interest area and the Medicine Lake Highlands TCP.
Consistency with Federal, State, or Local Laws or Requirements (CFR 1508.27(b)(10))

**Context** – All activities must be consistent with the *Regulatory Framework* described in the Introduction.

**Intensity** – All alternatives studied in detail would meet the Forest Plan for scenery, upon project completion. Forest Plans are promulgated in compliance with the various statutory and regulatory direction, including NFMA. The proposed action is consistent with all Federal, State and local laws or requirements imposed for protection of the environment pertaining to scenery.

**Comparison of Alternatives**

**Comparison of Alternatives 2a, 3a, 3b and 7**
The proposed treatments for Alternatives 2a, 3a, 3b and 7 are very similar from a scenery perspective; differences are comparatively negligible. Alternatives 3a, 3b and 7 include an additional unit that would benefit scenery in the short and long term. In the short term, it would reduce the contrast that would happen when the unit across the road was treated thus helping both areas be less visually apparent. In the long term, treating the additional unit would create a forest that would be visually accessible, encourage a variety of colors and textures due to new grasses, forbs and shrub. Alternative 7 differs by masticating excess slash rather than machine piling. Masticated slash would be not as visually apparent as the machine piles, initially. The masticated slash would be lower to the ground creating a mat of small woody debris, while the machine piling would have rather large visually obtrusive piles. However, the machine piles may be burned before the masticated slash could completely deteriorate. Research states that downed wood from timber harvesting and tree thinning is considered ugly and has negative impact on scenic beauty. Removing dead wood or chipping on site can greatly increase scenic ratings for tree thinning projects. Thus Alternative 3a would be the preferred Alternative from a scenery perspective because this alternative would remove the excess biomass. The adaptive management strategy for Alternative 3b would be difficult to assess for scenery because it is not known how, if or when the biomass would be removed.

**No Action**
Alternatives 2a, 3a, 3b and 7 would meet the desired future condition for scenery and the No Action Alternative would not. The desired future condition for scenery is a healthy forest with a range of mature trees to seedlings, clumps of hardwoods and understory. (Forest Plan 4-80, 4-81) A forest with a range of vegetation types would have a variety of colors, textures, diversity and light patterns which can be more visually interesting than a forest that is not visually accessible and without diversity.

**Conclusion**
In summary, the No Action alternative would meet the Forest Plan direction for scenery, however not the desired future condition. Alternatives 2a, 3a, 3b and 7 would meet Forest Plan direction and the desired future condition. Alternative 3a would be preferred from a scenery perspective due to the additional unit and biomass removal treatments that would add benefits to the scenic resource in the short and long term. It would also leave a forest that looks more natural with fewer disturbances from management activities than the other alternatives.
A. Appendix – Photographs as seen from Powder Hill Road

Photo 1 – Proposed Unit 48-225

Photo 2 – Unit thinned previous year across the road from Proposed Unit 48-225.

Photo 3 – Proposed Unit 48-225 on left and the previously thinned unit on the right.
The above Google Earth photo shows the approximate location and size of the proposed Porcupine Vegetation Project in relationship to the Medicine Lake Highlands Traditional Cultural Property (TCP) boundary. The closest high points are Six Shooter Butte (KOP 1), Yellowjacket Butte (KOP 2) and Shotgun Peak (KOP 3). The westside of the project is Powder Hill Road (43N49) (KOP 4) which has VQO requirements per the Forest Plan. Please see Appendix B3 for views from Yellowjacket Butte and Shotgun Peak. Views from Six Shooter Butte high points were unseen due to the timbered landscape in the foreground.
B3 Appendix – Photos from the TCP towards the Project Area

Photo 4 – Views toward the project area from Yellowjacket Butte (2004). Existing canopy openings were unseen due to the topography, viewing angle and canopy. The hill in the center of the photograph is Stud Hill and the hills in the background to the right are Saddle Hills.

Photo 5 – Views toward the project area from Shotgun Peak (2004). Existing canopy openings were unseen. The hill to the left is Stud Hill. The double knobbed hill to the right is Six Shooter Butte. The opening in the center of the photo is Bruin Flat Iodine Prairie.
B4 Appendix – 1998 Aerial Photo of Project Area - identifies canopy openings at the time that the photos (Appendix B3) were taken and the Porcupine proposed units.
Works Cited


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